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The impact of EU consumption on deforestation: Identification of critical areas where Community policies and legislation could be reviewed

Final report

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The impact of EU consumption on deforestation: Identification of critical areas where Community policies and legislation could be reviewed



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SUMMARY

Identification of the Community policy areas with the greatest potential for reducing pressure on forests in third countries

The consumption of food and non-food products by the EU27 has an impact on deforestation. To meet its consumption standards the EU27 not only relies upon its own productive agricultural land and forests, but it also has a land use impact beyond its borders. In the previous project tasks it was concluded that the EU27 is a large importer of some specific products and services and, consequently, of the land use associated to produce them. In some third countries the expansion of agricultural land and unsustainable exploitation of forest resources can ultimately lead to deforestation.

This report identifies the Community policies and legislation with the greatest potential for reducing the impact of EU consumption on deforestation in third countries.

As the objective of the study is to look at the impact of EU consumption, information on the type and use of imported goods and commodities that are important in terms of embodied deforestation is an essential basis for this evaluation. Therefore, this report is starting with a brief summary of the key conclusions of the Task 2 report: "Comprehensive analysis of the impact of EU consumption of imported food and non-food commodities and manufactured goods on deforestation".

Criteria have been developed to evaluate the relevance of policies for the purpose of this study. Specifically, for a policy measure to be capable of a reductive effect on third country deforestation, it must be able to satisfy one or more of the following criteria; that the policy (including its further development, if envisaged) could have the potential to:

- Reduce the land use linked to the production of primary commodities at source;
- Reduce the level of deforestation linked to the production of the identified primary commodities;
- Reduce the embedded deforestation of products produced;
- Contribute to the supply chain of commodities, products and services with no or lower deforestation impact;
- Reduce EU consumption (in general, and more specifically of commodities, products and services having deforestation impacts at global scale)

Based on the above criteria the following EU policies and policy areas were identified: Climate and Renewable energy policy, Common Agricultural Policy, Forestry Strategy, Biodiversity Strategy, Sustainable Production and Consumption Policy, Trade Policy, investment Policy, Development Cooperation Policy and Research and Innovation policy.

This analysis is based on a qualitative 'conceptual model' describing how consumption is creating a demand for land which can lead to deforestation in third countries.

The final sections of the report provide a more in depth assessment of the most critical EU policies and legislation which have the potential to reduce the impact of EU consumption on third country deforestation.

Based on this analysis, policy proposals, assessed against the criteria of impacts on deforestation, efficiency and side effects, are developed in the Task 4 report on “The impacts of EU consumption of food and non-food imports on deforestation: Proposing specific Community policy and legislative measures and other initiatives”. This report will also list other possible policy measures to be taken at other levels (e.g. EU Member State, multilateral, private sector) that could support the overall objective of reducing the loss of forest cover in third countries.

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LIST OF ACRONYMS

ACP	Africa, Caribbean and the Pacific
ASEAN	Association of Southeast Asian Nations
BIT	Bilateral Investment Treaty
CDM	clean development mechanism
CAP	Common Agriculture Policy
CoP	Conference of Parties
CGIAR	Consultative Group on International Agricultural Research
CSR	Corporate social responsibility
CEP	Country Environmental Profiles
IDH	Dutch Sustainable Trade Initiative
EPA	Economic Partnership Agreement
ERU	emissions reduction unit
ESG	Environmental, social and corporate governance
ECCP	European Climate Change Programme
EIB	European Investment Bank
EBA	Everything But Arms regulation
ECA	Export Credit Agency
COMEOS	Federation for Trade and Services
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FAP	Forest Action Plan
FCPF	Forest Carbon Partnership Facility
FFD	Forest footprint disclosure
FLEGT	Forest Law Enforcement, Governance and Trade
FAP	Forestry Action Plan
FTA	Free Trade Agreement
Mercosur	Free Trade Area among Brazil, Argentina, Paraguay and Uruguay
GSP	Generalized System of Preferences
GIZ	Gesellschaft für Internationale Zusammenarbeit
GRI	Global Reporting Initiative
GRSB	Global Roundtable for Sustainable Beef
GTAP	Global Trade Analysis Project
GHG	Greenhouse Gas
iLUC	Indirect Land-Use Change
IFC	International Finance Corporation
IFPRI	International Food Policy Research Institute
IIA	International Investment Agreement
LULUCF	Land Use, Land-Use Change and Forestry
LDC	Least Developed Country
MFN	Most Favoured Nation
MEA	Multilateral Environmental Agreement
NREAPs	National Renewable Energy Action Plan
NREAP	National Renewable Energy Action Plans
OECD	Organization for Economic Cooperation and Development
PES	Payment for Ecosystem Services
PRI	Principles for Responsible Investment Initiative
The	REDD Fast Logging Assessment & Monitoring Environment
REDD- FLAME	

List of Acronyms

REDD+	Reduced Emissions from Deforestation and forest Degradation
RED	reducing emissions from deforestation
REDDAF	Reducing Emissions from Deforestation and Degradation in Africa
The ReCover project	Science based remote sensing services to support REDD and sustainable forest management in tropical region
SRI	Socially Responsible Investing
SEA	Strategic Environmental Assessment
REDDines	Support EO-driven forest and carbon monitoring in Central Africa for REDD
SIA	Sustainability Impact Assessment
SCP	Sustainable Consumption and Production
TFT	Tropical Forest Trust
UNCTAD	United Nations Conference on Trade and Development
UNEP	united nations environment programme
UNFCCC	United Nations Framework Convention on Climate Change
VPA	Voluntary Partnership Agreements
WRAP	Waste Resources Action Programme
WTO	World Trade Organisation

CHAPTER 1 DEFINITION

This report identifies the Community policies and legislation with the greatest potential for reducing the impact of EU consumption on deforestation in third countries. In CHAPTER 3 it will be explained which criteria have been used to evaluate the relevance of policies for the purpose of this study. As the objective of the study is to look at the impact of EU consumption, information on the type and use of imported goods and commodities that are important in terms of embodied deforestation is an essential basis for this evaluation. Therefore, this report is starting (in CHAPTER 2) with a brief summary of the key conclusions of the Task 2 report “Comprehensive analysis of the impact of EU consumption of imported food and non-food commodities and manufactured goods on deforestation”. In the same CHAPTER 2 it will be indicated how the results of task 2 contribute to the development of criteria for the selection of EU policies that have a potential for reducing the EU deforestation impact.

CHAPTER 3 then presents an analysis for identifying EU policies and legislation relevant to the above objectives. This analysis is illustrated with a qualitative 'conceptual model' describing how consumption is creating a demand for land which can lead to deforestation in third countries. The impact of different EU policies throughout the chain will be discussed.

The final sections of the report provide a more in depth assessment of the most critical EU policies and legislation which have the potential to reduce the impact of EU consumption on third country deforestation: Climate and Renewable energy policy, Common Agricultural Policy, Forestry Strategy, Biodiversity Strategy, Sustainable Production and Consumption Policy, Trade Policy, investment Policy, Development Cooperation Policy and Research and Innovation policy.

Based on this analysis policy proposals are developed in the Task 4 report on “The impacts of EU consumption of food and non-food imports on deforestation: Proposing specific Community policy and legislative measures and other initiatives”. This report will also list other possible policy measures to be taken at other levels (e.g. EU Member State, multilateral, private sector) that could support the overall objective of reducing the loss of forest cover in third countries.

CHAPTER 2 TASK 2 CONCLUSIONS

The key elements to be retained from Task 2 are summarized below. Also it will be indicated how the results of task 2 contribute to the development of criteria for the selection of EU policies that have a potential for reducing the EU deforestation impact.

2.1. METHODOLOGICAL APPROACH

The production of the goods and services we consume requires land to produce the primary commodities they are derived from. This study required the development of innovative models to link land use changes to deforestation data on the one hand and to link embodied deforestation to trade flows and final consumption in the EU on the other hand.

2.1.1. METHOD AND LIMITS OF THE TASK 2 STUDY

The study is based on FAO deforestation and trade data sets covering the period 1990 to 2008. Results reflect past deforestation and trade flows and trends may change over time. Data do not reflect reductions in deforestation in countries where recent legislation has been put in place to address this phenomenon, such as Brazil.

- Deforestation associated to the import and consumption of certain commodities and products is assessed according to the trade flow from the exporting country in which deforestation takes place.
- The study adopts the FAO definition of forest, which can include drier forests (such as savannah and cerrado), and not just tropical rain forests. Forest plantations are included in the definition, while oil palm plantations are not. Rubber plantations are often classified as agricultural crops and not as forests (but depends on the country).
- The impact on forests by illegal logging, mining, unsustainable forestry and agriculture practices, induced forest fires, could not be assessed due to uncertainties and limitations in the data available at global level. Thus, the impact of consumption of certain commodities, or industrial sectors, can be underestimated. The underlying deforestation data are mainly based on information provided by countries and are of variable quality. This results into a significant amount of unexplained deforestation.
- Certain assumptions have also been made in the methodology and models adopted under the study. Thus the figures provided are best estimates but uncertainties should be taken into account while interpreting the results. Assumptions and margins of error are described in more detail in the main report.

2.2. DRIVERS OF DEFORESTATION

For the period 1990-2008 **worldwide gross deforestation** is estimated at **239 million ha (Mha)**, or about 13 Mha on average per year. The main regions with gross deforestation are South America (33% of global gross deforestation), Sub-Saharan Africa (31%), and Southeast Asia (19%).

During the same period, gross deforestation was partially compensated by afforestation and natural expansion of forests, counting together for 115 Mha. This results in a **net deforestation** of **124 Mha**.

It must be noted, however, that the recent Remote Sensing Survey (RSS) recommends to revise these deforestation rates downwards, especially for the African continent¹.

This study identified drivers of deforestation by main sectors. Gross deforestation is attributed to five main sectors: “agricultural expansion”, “logging” (prior to agricultural expansion), “urban areas expansion”, “natural hazards (especially wildfire)” and “unexplained”. Of the 239 Mha of worldwide gross deforestation, about 58 Mha (24%) of reported deforestation cannot be clearly linked to the conversion of forests for clear consumption purposes or other reported deforestation causes. For the remaining 182 Mha of worldwide gross deforestation, about 41 Mha (17%) were caused by natural hazards (mainly natural or manmade fires) that did not result in reported agricultural land expansion. Furthermore, about 9 Mha (4%) were turned into built-up land and infrastructure.

The 132 remaining Mha, or **55%** of worldwide gross deforestation, can be clearly attributed to the conversion of forest land to **land for crop production, ruminant livestock production and industrial roundwood production (logging)**. These products were either used in the country of origin or exported for transformation and consumption elsewhere.

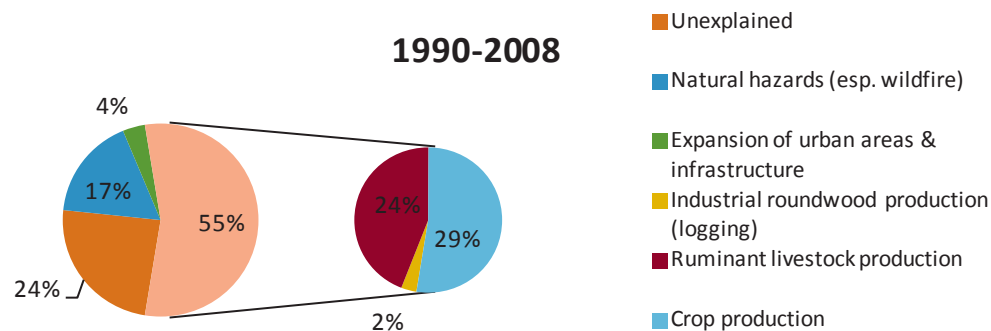


Figure 1 Global Gross deforestation by deforestation driver / sector, including the “unexplained” category over the period 1990-2008. The smaller pie of the pie-in-pie chart represents the embodied deforestation in agricultural and forestry commodities.

Only 4.5 Mha (**2%**) of deforestation was attributed to **logging**. Within the overall impact of the **agricultural sector** (128 Mha or **53%**), 69 Mha (**29%**) of forests were directly or indirectly cleared for **cropland** to meet the global human demand for food, feed for livestock, fuel and fibres from crops. About 58 Mha (**24%**) of forests were cleared for **pastures to raise livestock**.

2.3. DEFORESTATION EMBODIED IN AGRICULTURAL AND FORESTRY COMMODITIES AND INTERNATIONAL TRADE

The concept of “embodied deforestation” is used for linking deforestation to consumption. It refers to 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.

Approximately two-thirds of deforestation embodied in crop products stays in the producing country, while **one third** or **22.4 Mha** of deforestation is embodied in **crop products that are traded internationally**. Oil crops (soybean and oil palm) and their derived products represent the largest

¹ As the international trade exposure of Africa is relatively low compared to other regions, such revisions would have only a small implication for EU27 results..

share (63%) of deforestation embodied traded crop commodities, followed by stimulants (11%) like coffee and tea, and fibre crops (8%) like cotton and tobacco (Figure 4).

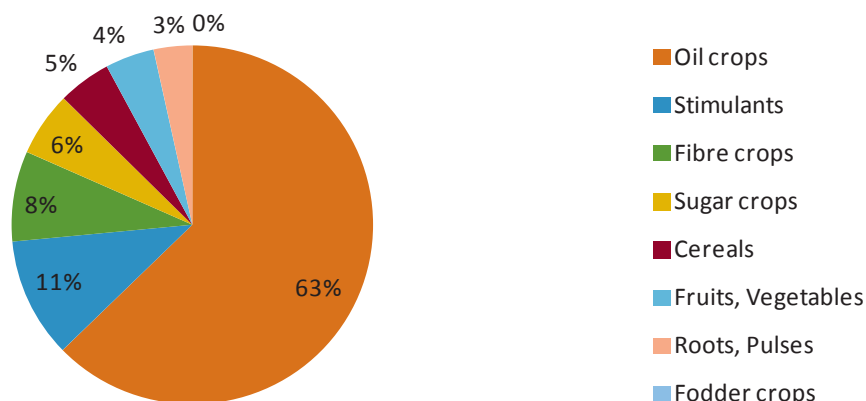


Figure 2 Deforestation embodied in traded crop commodities, by crop groups, for the period 1990-2008, totaling 22.4 Mha

For livestock products, the portion that remains in the country or region of origin is even higher. Only 4.7 (8%) of 58 Mha of **deforestation embodied in ruminant livestock products (mainly beef) is traded internationally.**

2.4. RELATIVE WEIGHT OF DEFORESTATION IMPACTS ASSOCIATED WITH EU27 TRADING

The EU27 was the largest importer of deforestation embodied in crop and livestock products. Over the period 1990-2008, the **EU27 imported 9 Mha of deforestation embodied in crop and livestock products.** This is almost **36% of all embodied deforestation** in crop and livestock products **traded** between regions during that period. The highest share of embodied deforestation was traded through international crop product trade. Consequently, the import of embodied deforestation through the **import of crop products was the main cause of the strong link between the EU27 and embodied deforestation.** Of the 22.4 Mha of embodied deforestation in traded crop products, **33% or 7.4 Mha was consumed by the EU27 economy.** A small part was re-exported as deforestation embodied in livestock products (see further). Embodied deforestation in the trade of ruminant livestock products was considerably lower. The analysis for the trade of embodied deforestation in livestock products consists of two different trade streams: ruminant livestock products raised on pastures in the country of origin and livestock products fed on feed crops with embodied deforestation. **The EU27 import of embodied deforestation in ruminant livestock products** during the period 1990-2008, amounts to 1.3 Mha out of a global total of 4 Mha, meaning that more than **one-quarter** of this amount was imported by the EU27. A fraction (0.14 Mha) of the imported embodied deforestation was re-exported in livestock products to other regions. Thus, from 1990 to 2008, about 1.2 Mha of deforestation was embodied in the EU27 net imports of ruminant livestock products due to expansion of pasture areas in the respective countries of origin. To conclude, the **EU27 is the main net importer of embodied deforestation in traded ruminant livestock products.** As the EU27 has been importing large amounts of crop commodities for feeding livestock and as a net exporter of livestock products, it has also been a small net exporter of deforestation (0.2 Mha) embodied in livestock exports fed on crops with embodied deforestation.

The detailed analysis on final consumption for 2004 (GTAP approach) (Cf. Figure 3) provides a comparison of embodied deforestation traded between different trading blocks. The EU27 is the largest net importer by a factor of two, followed by East Asia (including China and Japan), and then North America. South and Central America dominate the net exports, by a factor of three over South East Asia and then Africa, a factor of two less than South East Asia. The final consumption of deforestation embodied in crop products is the most decisive factor.

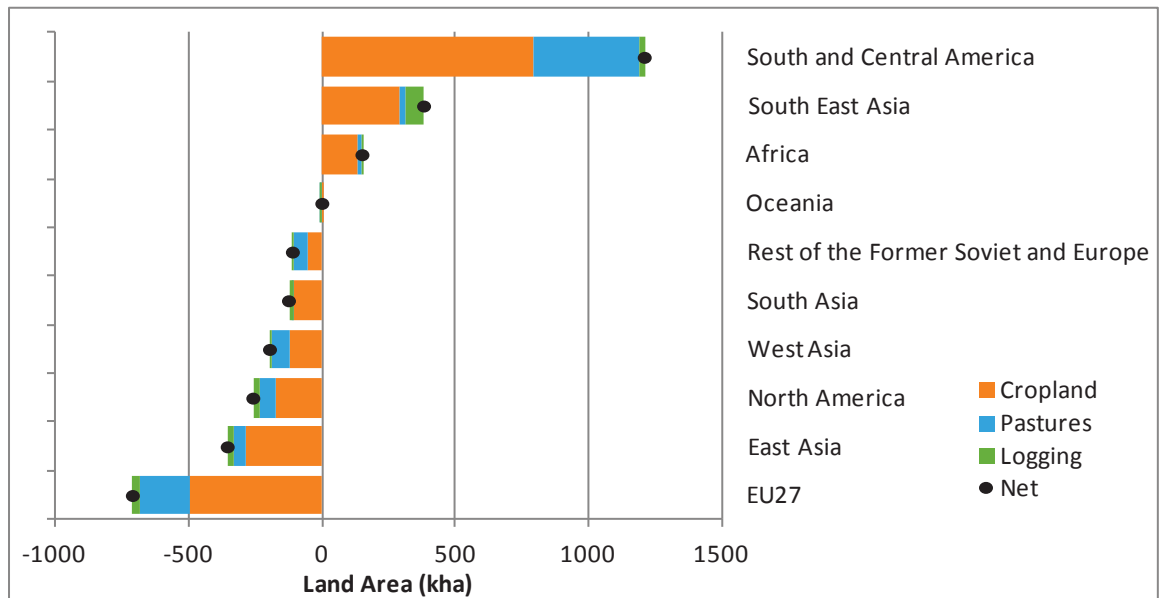


Figure 3 Trade balances for deforestation embodied in final consumption for different world regions. The figure shows deforestation embodied in the different sectors.

When looking at deforestation embodied in total final consumption per region, **the EU27 is consuming 732 kha (2004) or 10% of the global embodied deforestation consumption (7,290 kha per year)**. Africa, and South and Central America head the list with more than 2 Mha per year each (30% of the global share each). Unlike the EU27, this deforestation is associated with commodities that are produced locally.

2.5. DEFORESTATION IMPACTS ASSOCIATED WITH EU27 CONSUMPTION OF COMMODITIES, PRODUCTS, GOODS AND SERVICES BY SECTOR.

The EU27 produces a large share of the goods and services consumed in the EU27, while using raw and semi-processed agricultural and forestry commodities imported from other regions. The sectors of final consumption with the largest allocation of embodied deforestation are dominated by agricultural and food products, but processed products are often important, such as furniture and clothing. We found that service sectors (trade, public administration, health, education) had a large impact, due to a high share of expenditure on services and the use of processed products like food and paper in the service sectors. Figure 4 shows the relative importance of deforestation embodied in different goods and services sectors of final consumption in the EU27. The main goods and services are those that require food (both food from animal as non-animal origin), but general service sectors like trade, public administration, health and education do not only consume food, but also a wide variety of other products.

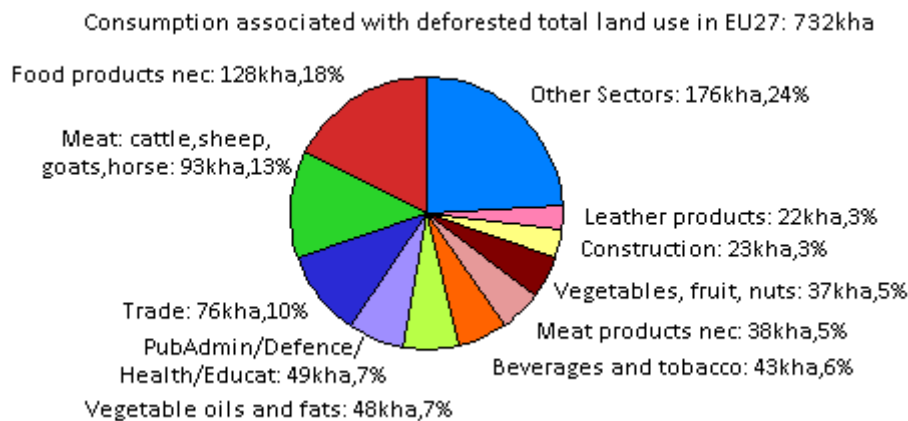


Figure 4 Consumption of goods and services associated with deforestation allocated by sector for the EU27 (2004). The pie chart only explicitly shows sectors covering 75% of the total are shown explicitly. The sectors shown represent the goods and services that were consumed in the EU27.

When aggregated per **sector**, **food** dominates the impact (**60%**, with **18% meat** and **42% other food**). The **service sectors** are the second most important (**22%**), although this is mainly due to high expenditure and consumption of food products in addition to paper, furniture, etc. **Wood and associated products** represent **5%**, and also **textiles including leather (6%)** and **manufactured products (3%)** are significant.

As illustrated by the Task 2 report, land use associated with the production of goods and services within the EU27 is only half the amount of land use associated with EU consumption, meaning that the other half of the resulting land use impact takes place in third countries.

2.6. THE ORIGIN OF THE GOODS AND SERVICES CONSUMED IN THE EU27 THAT ARE ASSOCIATED WITH DEFORESTATION

The study point towards South America and in particular Brazil and Argentina as the main sources for embodied deforestation associated with the consumption of agricultural and forestry products or goods and services within the EU27. This is mainly due to the import of soybeans and soybean cake used in many EU sectors. As previously mentioned, the expansion of soybean crops is the largest driver of deforestation in the analysed period.

For the period 1990-2008 amongst all commodities, oil crops are the most important, mainly due to soybeans and soybean products from Brazil, Argentina and Paraguay, and palm oil from Indonesia and Malaysia. Another important group are stimulants. Cocoa bean production has expanded in African countries like Ghana, Nigeria, Cameroon and Togo, but also Indonesia is an important country of origin. Coffee associated with deforestation was mainly imported from Latin American countries like Peru, Honduras, Nicaragua and Colombia, but also from Southeast Asian countries like Indonesia, Vietnam and Laos and some African countries (Kenya, Uganda and Tanzania).

Figure 5 gives the order of importance of different combinations of crop products and their country of origin. Only the most important combinations (share > 1%) are shown in detail.

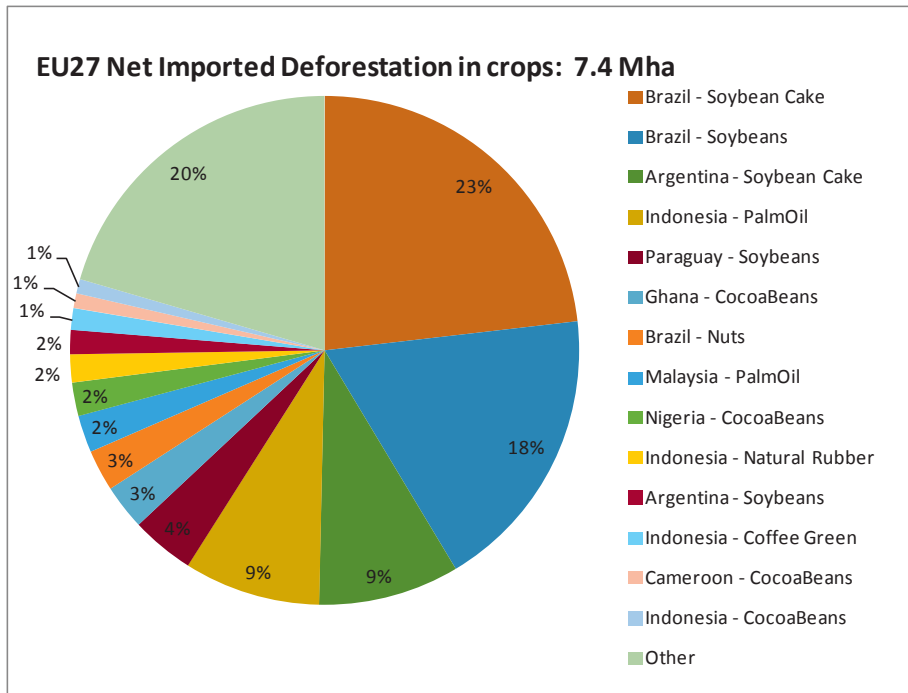


Figure 5 Most important crop commodities and countries of origin for deforestation embodied in crop imports into the EU27 (1990-2008)

Livestock products with embodied deforestation are mainly imported from South America and Sub-Saharan Africa.

CHAPTER 3 IDENTIFICATION OF POLICIES AND LEGISLATION: CRITERIA AND METHODOLOGY

3.1. INTRODUCTION

In task 2 the linkages were modelled between EU consumption of imported food and non-food commodities and products, their production and the resulting land use and deforestation impact in third countries. EU consumption is a driver for the production and supply of goods and services which require, amongst others, land as a resource. Products are goods and services that result from a process of production either in the EU or in third countries and for both cases the required agricultural and forestry commodities were traced back to their country of origin. The demand for land can be met by both domestic (EU) land use and third countries land use. Through international trade third countries land use can be drawn on to satisfy EU consumption. In brief, EU consumption creates a 'demand for land' which causes deforestation.

3.2. IDENTIFICATION OF POLICIES AND LEGISLATION THAT CAN HAVE A POSITIVE EFFECT ON REDUCING THIRD COUNTRY DEFORESTATION

Many internal and external EU policies have indirect impacts on deforestation. Different sectors and policies – such as trade, energy, agriculture, food security and development cooperation – can play a role in helping to conserve the world's forests. (European Commission, 2008b) Each policy will be described individually with a focus on its potential effect on reducing third country deforestation or in the more negative case its contribution to increased deforestation. In case different policies may have conflicting effects on deforestation, this will be highlighted in the description. However the does not address potential conflicts between EU policies. As an example, the Common Agricultural Policy objective to encourage increased EU production could potentially come into conflict with development cooperation activities. In such a case the report would only describe the potential impact of both policies on deforestation.

This chapter presents a methodology for determining the relevance of a particular policy.

From the Task 2 report, we concluded that the EU's main causative effect on third country deforestation was via its consumption (as described in CHAPTER 2). (Final) Consumption consists of goods and services used by individual households or the community to satisfy their Individual or collective needs or wants. It also includes capital investments. Because "consumption" is affected by both supply-side and demand-side factors (including resource efficiency/waste minimisation, and demand for alternative –i.e. sustainably produced- products), 'relevant policies' for the purposes of this study must therefore be capable of affecting either side of the consumption equation.

Specifically, for a policy measure to be capable of a reductive effect on third country deforestation, it must be able to satisfy one or more of the following criteria; that the policy (or the act of changing the policy) could have the potential to:

- 1.a. Reduce the **land use** linked to the production of primary commodities at source; the demand for productive land, both domestic and in third countries that is associated with EU consumption, may be reduced – even if EU consumption remains unchanged – by

producing primary commodities more efficiently in terms of the land needed per unit of output. The land use impact in third countries could also be reduced by increasing the production of primary commodities within the EU. Criterion 1.a. concentrates on primary production of agricultural commodities and forestry products with minimum land use.

- 1.b. Reduce the level of deforestation linked to the **source of production** of the identified primary commodities; with equal land use impact of EU consumption, the deforestation impact could be reduced by seeking to source primary commodities from pieces of land that are not the result of deforestation. The deforestation impact associated with EU imports could be realised by improving the sustainability of the imported goods and services. For this objective, internalisation of all costs (social, environmental ...) is an important instrument. Criterion 1b concentrates on primary production of agricultural commodities and forestry products on land that is not the result of deforestation, without reducing land use.
- 2. Reduce the embedded deforestation of products produced; reducing the embedded deforestation in the **production chain**, e.g. by reducing waste or increasing recycling and re-use, reduces the pressure on forests. The EU27 can control production processes within its own territory and thus have full influence over whether deforestation is caused or not. This, however, is not easy when products are imported. Criterion 2 concentrates on (intermediary or final) production processes through which agricultural commodities and forestry products are transformed into products and services.
- 3. Contribute to the supply chain of commodities, products and services with **no or lower deforestation impact**; increasing the efficiency throughout the entire supply chain of products with low deforestation impact reduces the demand for land and thus the pressure on forests. Criterion 3 concentrates on the supply chain, and in particular on how to bring products with low deforestation impact to the consumer. It aims at bringing the right products to customers.
- 4. Reduce **EU consumption** (in general, and more specifically of commodities, products and services having deforestation impacts at global scale)
When EU consumption is reduced, the demand for productive land, both domestic and in third countries, is decreased and this might – all other parameters remaining equal – have a reductive effect on third country deforestation. However, the required land use will only decrease when what is being consumed has not been produced less efficiently in terms of the land needed per unit of output. Criterion 4 aims at reducing consumption in general.

The order of the criteria is based on the chronology of the production-supply-consumption chain and does not reflect any value judgement.

As it may appear from the above criteria, deforestation impact comes forward as one element that fits into the cross-cutting EU Resource Efficiency policy.

Under the Europe 2020 strategy the flagship initiative for a resource-efficient Europe points the way towards sustainable growth. One of the building blocks of this initiative is the European Commission's Roadmap for a resource-efficient Europe (European Commission, 2011b). The Roadmap proposes ways to increase resource productivity and decouple economic growth from resource use and its environmental impact. It hereby builds upon elements of the Sustainable Consumption and Production Action Plan as well as the Thematic Strategy on Waste Prevention and Recycling (European Commission, 2005b) and the Thematic Strategy on the Sustainable Use of

Natural Resources (European Commission, 2005c). The eighteen milestones from the “Roadmap to a Resource Efficient Europe” have been used as an inspiration for this policy analysis. For a general description of the Roadmap, we refer to section 6.2.1. Table 1 overleaf provides an overview of the linkages between the milestones, the policy selection criteria used in this study and the policy field chapter where the milestone objective is addressed. It is shown that (i) all relevant milestones from the Roadmap are addressed in this study and (ii) different milestones address different policy selection criteria, thus demonstrating that the policy selection criteria have a distinctive capacity.

Table 1 Overview of the linkages between the milestones the European Commission's Roadmap for a resource-efficient Europe, the policy selection criteria used in this study and the policy field chapter where the milestone objective is addressed.

Milestone N°	Addressing	Linked to criteria					Addressed under policy field ...									
		1.a	1.b	2	3	4	EU Climate and Renewable energy policy	Common Agricultural Policy	EU Forestry Strategy	EU Biodiversity Strategy 2020	Sustainable production and consumption policy	EU Trade Policy 2020	EU INVESTMENT Policy	EU Development Cooperation Policy	EU research and innovation policy	
1	Changing consumption patterns				x	x						X				
2	Boosting efficient production	x	x	x				x	x			x				
3	Turning waste into a resource			x								x				
4	Supporting research and innovation	x		x	x	x										x
5	Phasing out inefficient subsidies	x			x			x		x		x				
6	Getting the prices right and reorienting the burden of taxation	x		x	x			x				x	x			
7	Ecosystem services properly valued		x							x						x
8	Halt loss of biodiversity in the EU	NR						x		x						
9	Water Framework Directive River Basin Management Plans	NR														

List of Acronyms

Milest one N°	Addressing	Linked to criteria					Addressed under policy field ...								
		1.a	1.b	2	3	4	EU Climate and Renewable energy policy	Common Agricultural Policy	EU Forestry Strategy	EU Biodiversity Strategy 2020	Sustainable production and consumption policy	EU Trade Policy 2020	EU INVESTMENT Policy	EU Development Co-operation Policy	EU research and innovation policy
10	EU's air quality standards	NR													
11	Take into account land use in the EU and globally	x					x	x	x	x	x	x	x	x	x
12	Marine resources	NR													
13	Addressing food	x	x	x	x	x	x	x		x	x				x
14	Improving buildings			x							x				
15	Ensuring efficient mobility	NR													
16	New pathways to action on resource efficiency (1)	x	x	x	x	x					x				x
17	Supporting resource efficiency internationally	x	x	x	x	x								x	x
18	Improving the delivery of EU environmental measures	NR													

Legend:

NR = not relevant for the study.

(1) : Resource efficiency is a cross-cutting policy, encompassing all policy fields. The proposed measures are holistic and of general nature.

3.2.1. LIMITS OF THE METHODOLOGY

This analysis is based on a qualitative assessment of existing EU policies or EU policies under development that may have a potential impact on deforestation in third countries. The above criteria will be applied in a qualitative manner, taking into account the results and conclusions of task 2. No quantified analysis of the potential future deforestation impact of existing policies or policies under development can be made, based on the models developed for Task 2. These can only establish the historic link between land use and deforestation, but cannot be used to predict future deforestation impact, which may be influenced by unpredictable future evolutions in commodity prices and trade patterns. E.g. oil crops such as soy beans, oil palm and rapeseed are to a high extent interchangeable in certain products and production processes, but they are sourced from totally different origins. If trade patterns are shifting due to changes in commodity prices, as it has happened in the past, this may lead to totally different deforestation impacts for the same production.

We will look at existing EU policies and EU policies in the pipeline that have reached a mature stage of definition with the aim of answering the following questions:

- Does the renewable energy policy increase the demand for land and does this result in a higher pressure on forests? (Cf. Section 4.2)
- What is the likely impact of the ongoing reform of the Common Agricultural Policy (CAP), compared to Business as Usual (current rules)? (Cf. Section 5.1)
- What measures are contained in the current CAP proposals that can be at least partially related to decreasing the EU impact on deforestation? (Cf. Section 5.1.2)

The report does not address questions such as:

- What would be the impact on deforestation had there been no CAP?
- What would be the impact if we dismantle the CAP now?; or
- What is the impact of the CAP reform compared to other possible reforms?

In applying these criteria against relevant EU policies and legislation we have identified the following policy areas and legislation to be analysed. Policy options will be elaborated in the task 4.report. In that report an assessment will be made of the impact and efficiency of potential measures on a semi-quantitative scale (high/medium/low) but it will not be possible to quantify the impact of the measures.

3.2.2. EU CLIMATE AND RENEWABLE ENERGY POLICY

The EU Climate policy has a potential impact on deforestation through on the one hand the implementation of LULUCF project activities in non-Annex I countries (clean development mechanism or CDM) or through implementing projects in another Annex I country (Joint Implementation) Because this policy area potentially has a direct impact on afforestation and reforestation in third countries, it may be used to offset the impact of EU consumption on deforestation in third countries. It therefore satisfies criterion 1b and will be included for more detailed analysis below.

On the other hand, the EU Climate policy can have an impact on deforestation in third countries through developing financial mechanisms to support the full implementation of results-based REDD+ actions.

The Renewable Energy policy area potentially affects global land use by increasing the demand for biofuel and biomass via its target for increased renewable energy production in the EU. Such targets could lead to increased demand for certain oilseed crops or for solid biomass. Besides this direct impact, there is a potential indirect impact by displacements of food crops, requiring them to be sourced from elsewhere. It is unlikely that the land use demand for biofuels would lead to deforestation, because the EU targets for Renewable Energy production are made conditional on the meeting of sustainability criteria for the biofuels used. It cannot be excluded however that the indirect land use by displacement of food crops may lead to deforestation. Because this policy area potentially affects (1a) the land use impact of the production of primary commodities at source (oil crops and solid biomass); (1b) the deforestation impact of related indirect last use and (3) the supply chain of the above commodities (i.e. biofuel crops and solid biomass) the policy therefore satisfies criteria 1a, 1b and 3 and will be included for more detailed analysis below.

3.2.3. COMMON AGRICULTURAL POLICY

The policy area, referring to the recent CAP reform proposals, is primarily aimed to support sustainable land use and food production within the EU (domestic land use), which has an indirect impact on land use and deforestation outside the EU. The CAP also includes policy measures on market instruments and trade, which influences the supply and import of food crops and commodities from third countries into the EU. The CAP therefore meets the criteria 1a - Reduce the land use impact of the production of primary commodities at source; 1.b. Reduce the level of deforestation impact of the production of those primary commodities; and 3. Contribute to the supply chain of products with low deforestation impact.

3.2.4. EU FORESTRY STRATEGY

The EU Forest strategy and action plan contains various elements that have a potential direct impact on deforestation in third countries, i.e. through FLEGT, and indirectly through making the supply chain more sustainable. It therefore satisfies the following criteria:

- 1.b. Reduce the level of deforestation impact of the production of those primary commodities;
2. Reduce the embedded deforestation of products produced;
3. Contribute to the supply chain of products with low deforestation impact.

3.2.5. EU BIODIVERSITY STRATEGY 2020

The biodiversity strategy is aimed at halting the loss of biodiversity. Outside EU, deforestation is a major cause of biodiversity loss. The strategy contains elements or actions that are directly targeted at improving land use and halting deforestation and elements that target the key drivers of deforestation, i.e. trade and consumption patterns within the EU. It therefore meets the following criteria:

- 1a. Reduce the land use impact of the production of primary commodities at source
- 1.b. Reduce the level of deforestation impact of the production of those primary commodities;
2. Reduce the embedded deforestation of products produced;
3. Contribute to the supply chain of products with low deforestation impact
4. Increase consumer demand for commodities and products with low deforestation impact within the EU.

3.2.6. SUSTAINABLE PRODUCTION AND CONSUMPTION POLICY

Sustainable consumption and production policies potentially affect the efficiency of production in terms of the amount of land required (and therefore also third country deforestation) per unit of output and/or the deforestation embedded per unit of output as well as the demand for products and services with no and/or a lower deforestation impact. Also, increasing the resource efficiency throughout the entire supply chain by reducing waste as well as increasing the recycling and re-use of waste, reduces the demand for land and thus the pressure on forests. Sustainable consumption and production policies therefore satisfy criteria (1a), (1b), (2), (3) and (4) and will be included for more detailed analysis below.

3.2.7. EU TRADE POLICY 2020

International trade allows a region to both consume more than it actually produces, and shift the environmental burden (e.g. deforestation) of the extra consumption to distant places. This is the result of the difficulty to ensure that the prices of the goods and services produced in one country reflect the entire environmental cost of production. This situation can distort a region's real comparative advantages, stimulating overconsumption of the environmental resources and thereby reducing overall welfare. Trade policy, however, defines the conditions on which commodities and products that are associated with deforestation can enter the EU market. These conditions then impact on the production of products and commodities. Trade policy therefore satisfies criteria (1a), (1b), (2) and (3) and will be included for more detailed analysis below.

3.2.8. EU INVESTMENT POLICY

Policies addressing foreign investment potentially affect the conditions on which foreign investors (are able to) invest and operate abroad. As investors provide capital, which is, together with land and labour, a key factor of production, they have the power to influence how businesses operate. Concretely, investors can discharge their power to reduce the deforestation embodied in the primary commodities and products produced by the businesses it invests in / might invest in. Possibly, also the land use associated with the production of commodities and products could be targeted by foreign investment policies. Foreign investment policy therefore satisfies criteria (1a), (1b) and (2) and will be included for more detailed analysis below.

3.2.9. EU DEVELOPMENT COOPERATION POLICY

The EU and its Member States are the largest donors of development assistance worldwide. Relatively few development actions specifically address deforestation. Nonetheless, development cooperation, together with other external policies of the EU, proactively contribute to capacity and institutions building for strengthening and effectively enforcing environmental standards and regulations, thereby also reducing pressures on forests (reducing the deforestation embodied in primary commodities and products). Also, development actions are targeted at supporting efficiency improvements in agriculture (reducing the land use embodied in primary commodities and products at source). Development cooperation therefore satisfies criteria (1a), (1b) and (2) and will be included for more detailed analysis below.

3.2.10. EU RESEARCH AND INNOVATION POLICY

The Research and Innovation potentially can affect the global land use impact and deforestation impact of EU consumption through its research topics. Research can be undertaken in the following fields:

- 1.a. Research into the reduction of the land use impact of the production of primary commodities;
- 1.b. Research into the level of deforestation impact of the production of primary commodities;
2. Research into the reduction of embedded land use and deforestation of products through as part of sustainable production practices;
3. Research into supply chains and business models contributing to the reduction of land use and deforestation impacts of products and services;
4. Research into sustainable consumption practices leading to increased consumption within the EU of commodities and products with low deforestation impact

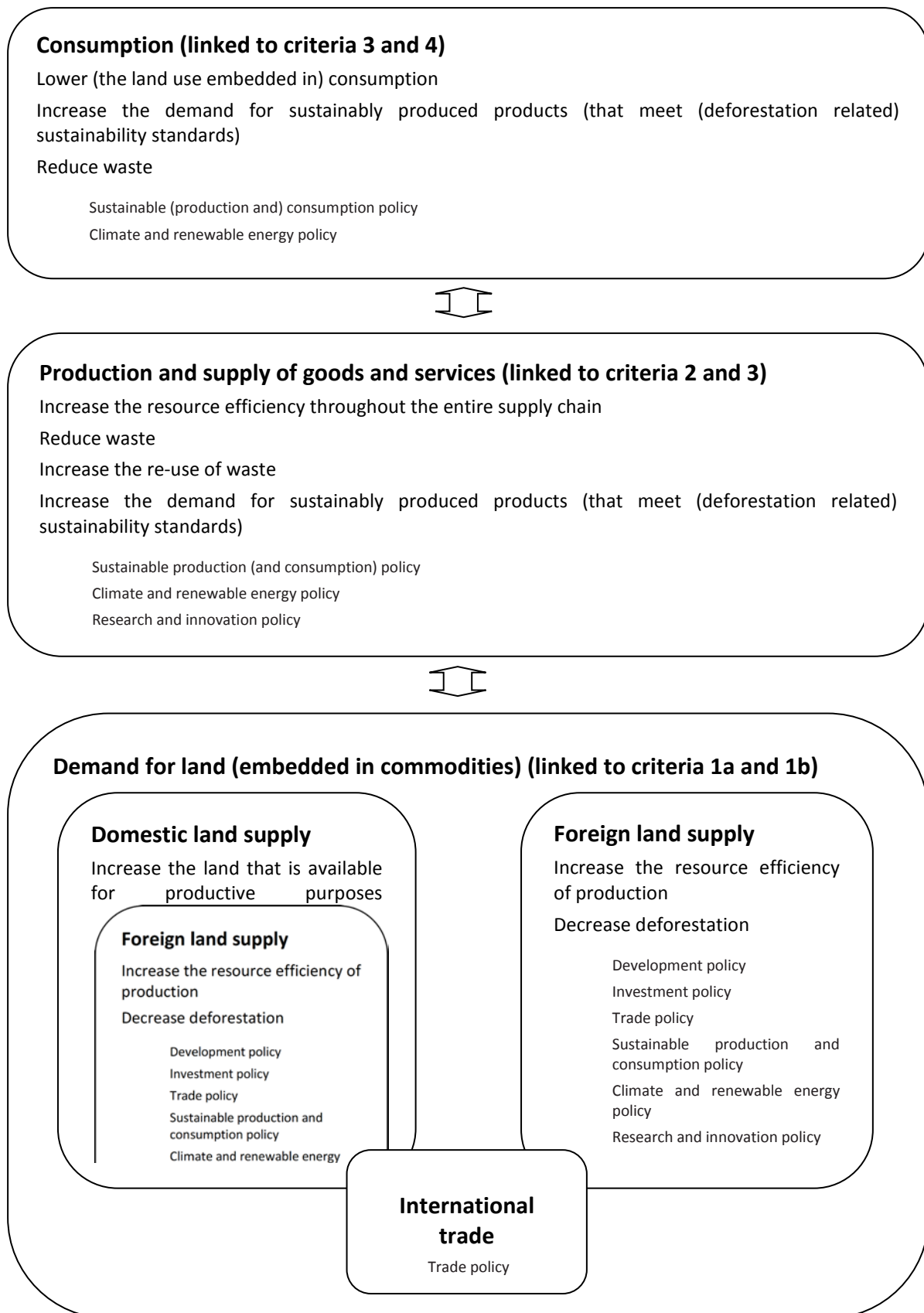
The impact on deforestation is of course indirect and is conditional on the implementation of the research results.

Because this policy area potentially affects all five criteria for the policy selection, it will be included for more detailed analysis below.

3.2.11. SUMMARY AND CONCLUSION

As a summary the figure below shows in more detail how each policy relates to the different aspects of deforestation impacts by charting where each policy can play a role. The methodology shows what could be done at each stage in the process to have a positive effect on reducing third country deforestation.

Figure 6 Overall methodology



Criteria have been developed to evaluate the relevance of policies for the purpose of this study. Specifically, for a policy measure to be capable of a reductive effect on third country deforestation, it must be able to satisfy one or more of the following criteria; that the policy (or the act of changing the policy) could have the potential to:

- 1.a. Reduce the land use linked to the production of primary commodities at source;
- 1.b. Reduce the level of deforestation linked to the production of the identified primary commodities;
- 2. Reduce the embedded deforestation of products produced;
- 3. Contribute to the supply chain of commodities, products and services with no or lower deforestation impact;
- 4. Reduce EU consumption (in general, and more specifically of commodities, products and services having deforestation impacts at global scale)

Based on the above criteria the following EU policies and policy areas were identified: Climate and Renewable energy policy, Common Agricultural Policy, Forestry Strategy, Biodiversity Strategy, Sustainable Production and Consumption Policy, Trade Policy, investment Policy, Development Cooperation Policy and Research and Innovation policy.

In the following chapters we will turn to a more in-depth discussion of each policy area identified above, together with its relevant legislative and other instruments and their potential for reducing third country deforestation.

3.3. LITERATURE

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CHAPTER 4 CLIMATE AND RENEWABLE ENERGY POLICY

4.1. CLIMATE POLICY

4.1.1. INTRODUCTION

Following on from work under the European Climate Change Programme (ECCP), the European Union has come up with a realistic climate change strategy, advocating practical action to prevent temperatures from increasing to more than 2°C above pre-industrial levels. In the international arena, the EU is at the very forefront of the fight against climate change and takes an active part in negotiations on the subject. The EU signed up in 1998 to the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC).²

According to the IPCC's fourth assessment report (2007), deforestation in the tropics and forest re-growth in temperate and boreal zones are among the major factors contributing to respectively emissions and removals of greenhouse gases. For this reason, policies and activities that reduce greenhouse gas emissions resulting from land use change are recognized as a powerful mitigation measure. Under the auspices of the UNFCCC, emissions from land use changes are addressed under the sector land use, land use change and forestry (LULUCF) of the Kyoto Protocol and under the REDD+ mechanism.

A post-2012 climate change agreement under the UNFCCC is expected to include a framework to reduce the emissions from deforestation and forest degradation, and to enhance forest carbon stocks in developing countries (REDD+; Busch et al., 2009). The aim of such a mechanism is to curb or limit deforestation and the related greenhouse gas emissions by providing economic incentives to developing countries to keep their forests intact (Karsenty, 2008).

The EU has played an active role in the debate on REDD+ and is one of the Parties aiming to include a general and overarching objective in the REDD+ decision. This objective is to half deforestation compared to 2005-2010 levels by 2020 and to halt global forest loss by 2030 at the latest.

The EU Climate policy has a potential impact on deforestation through on the one hand the implementation of LULUCF project activities in non-Annex I countries (clean development mechanism or CDM) or through implementing projects in another Annex I country (Joint Implementation) Because this policy area potentially has a direct impact on afforestation and reforestation in third countries, it may be used to offset the impact of EU consumption on deforestation in third countries. It therefore satisfies criterion 1b and will be included for more detailed analysis below.

On the other hand, the EU Climate policy can have an impact on deforestation in third countries through developing financial mechanisms to support the full implementation of results-based REDD+ actions.

² http://europa.eu/legislation_summaries/environment/tackling_climate_change/index_en.htm

4.1.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

The main legislation and other instruments governing this policy are as follows:

→ LULUCF

Many human activities in the LULUCF sector affect the carbon stocks of terrestrial ecosystems and emissions of carbon to the atmosphere. For this reason, several Articles of the Kyoto Protocol make provisions for the inclusion of land use, land-use change and forestry activities by Parties as part of their efforts to implement the Kyoto Protocol and contribute to the mitigation of climate change. Mitigation can be achieved either by increasing the removals of greenhouse gases from the atmosphere or by reducing emissions by sources.

Under Article 3.3 of the Kyoto Protocol, Parties decided that net changes in GHG emissions by sources and removals by sinks through direct human-induced LULUCF activities, limited to afforestation, reforestation and deforestation that occurred since 1990, can be used to meet Annex I Parties' emission reduction commitments. Under Article 3.4 of the Kyoto Protocol, Annex I Parties may elect additional human-induced activities related to LULUCF specifically, forest management, cropland management, grazing land management and revegetation, to be included in their accounting of anthropogenic GHG emissions and removals for the first commitment period.

Two of the flexible mechanisms of the Kyoto Protocol make provisions for the implementation of LULUCF project activities by Parties. The clean development mechanism (CDM) under the Kyoto Protocol (Article 12) allows for the implementation of LULUCF project activities, limited to afforestation and reforestation, in non-Annex I countries. These project activities assist Annex I Parties in achieving compliance with their emission reduction commitments, while simultaneously assisting non-Annex I Parties to achieve sustainable development. Under the second flexible mechanism, i.e. Joint Implementation, an Annex I Party may implement projects that increase removals by sinks in another Annex I country. The emissions reduction units (ERUs) generated from such a project can be used by the former to meet its emission reduction target.

→ REDD+

A post-2012 climate change agreement under the UNFCCC is expected to include a framework to reduce the emissions from deforestation and forest degradation, and to enhance forest carbon stocks in developing countries (REDD+; Busch et al., 2009). The aim of such a mechanism is to curb or limit deforestation and the related greenhouse gas emissions by providing economic incentives to developing countries to keep their forests intact (Karsenty, 2008). Although the idea of a REDD+ mechanism is relatively new in the climate change negotiations, it attracted considerable attention of both developed and developing countries. Discussions were initially limited to reducing emissions from deforestation (RED), but expanded to include forest degradation (REDD) and conservation, sustainable management of forests and enhancement of forest stocks (REDD+; Verchot and Petkova, 2009).

The EU has played an active role in the debate on REDD+ and is one of the Parties aiming to include a general and overarching objective in the REDD+ decision. This objective is to half deforestation by 2020 compared to 2005-2010 levels and halt global forest loss by 2030 at the latest. This would require scaled-up support to developing countries to act against deforestation, monitor results and prepare for implementation of the REDD incentive scheme under negotiation in the UNFCCC (2011 –

2013 Strategy paper & multiannual indicative programme of the European Commission). To do so the European Commission has set-up and supported several initiatives:

- Fast Start Finance

The European Commission pledged a total of €150 million additional grant funding as its contribution to fast-start finance in the period 2010-2012. A total of €7 million are committed to reduce GHG by reducing deforestation and forest degradation in developing countries. Funding will partly be allocated to the support of the Forest Carbon Partnership Facility; as well as to the creation of the EU REDD Facility, aimed at building developing country capacities for REDD+.

- Forest Carbon Partnership Facility (FCPF)

The European Commission contributes €4 million to the FCPF's Readiness Fund which supports 15 countries in Latin America, 14 countries in Africa and 8 countries in Asia Pacific. The aim of the FCPF is to set the arena for a much larger system of positive incentives and financing flows for REDD+ in the future. It seeks to create an enabling environment and a generation of knowledge and experience to inform the negotiations of a future climate regime which may include REDD+.

- The REDD+ Partnership

The European Union is involved in the voluntary REDD+ Partnership which serves as an interim platform for partner countries to scale up actions and finance for REDD+ initiatives in developing countries. This includes improving the effectiveness, efficiency, transparency and coordination of REDD+ initiatives and financial instruments, to facilitate knowledge transfer, capacity building, mitigation actions and technology development and transfer.

- The EU REDD Facility

The European Forest Institute's EU REDD Facility was established in December 2010 to provide effective support to the development and implementation of REDD+ policies in developing countries. It aims at helping developing countries build their capacity and improve forest governance for REDD+ through analysis, advice, outreach and training, as well as by facilitating access to and benefit from different on-going initiatives. The Facility contributes to developing an EU approach to REDD+. It focuses on overcoming the governance challenges related to REDD+ and promoting overall sustainability of REDD+ activities. It seeks to identify and build operational synergies between the REDD+ and the EU Forest Law Enforcement, Governance and Trade (FLEGT) processes so as to increase the effectiveness of both processes, speed up implementation and enhance on-the-ground coordination of EU support. It has the ambition to grow and attract more resources to meet identified needs of developing countries. The Commission has committed a total of €3 million to this initiative that will have pilot countries in Asia, Africa and Latin America.

- Research projects funded by the FP7 program of the EU

Several research projects are funded through the seventh framework programme (FP7) of the European Commission which relate directly to REDD+.

REDD-ALERT (Reducing Emissions from Deforestation and Degradation through Alternative Land uses in Rainforests of the Tropics) has the overall goal to contribute to the development and evaluation of mechanisms and the institutions needed at multiple levels for changing stakeholder behaviour to slow tropical deforestation rates and hence reduce GHG emissions.

The I-REDD+ project aims at ensuring that the implementation of a future REDD+ mechanism is based on the highest level of knowledge on carbon storage in landscapes, monitoring technology, potentially negative impacts on local livelihoods and governance structures for managing payments.

In the project these issues are addressed at national and local level in four countries, i.e. Laos, Vietnam, China and Indonesia.

REDDines (Support EO-driven forest and carbon monitoring in Central Africa for REDD) is an international partnership to assist Gabon and the Republic of Congo in establishing their national forest monitoring centers.

The ReCover project (Science based remote sensing services to support REDD and sustainable forest management in tropical region) aims at developing beyond state-of-the-art service capabilities to support fighting deforestation and forest degradation in the tropical region in the REDD+ process context.

REDDAF (Reducing Emissions from Deforestation and Degradation in Africa) aims to develop pre-operational forest monitoring services in two Congo Basin, i.e. Cameroon and Central African Republic, countries that are actively involved in the REDD process. The project is lead by GAF AG and involves six partner organisations from the EU, Cameroon and the African Republic.

The REDD-FLAME (REDD Fast Logging Assessment & Monitoring Environment) project will design, prototype and demonstrate a system capable of monitoring tropical and sub-tropical forests using high-resolution radar (and optical) imagery acquired by Earth Observation satellites. The project is conducted by Remote Sensing Applications Consultants Limited of the United Kingdom with the collaboration of seven partners from the EU, Brazil, Mozambique and Indonesia.

4.1.3. CONCLUSION

A comprehensive EU REDD+ policy should provide a framework to support the full implementation of results-based REDD+ actions, which promote poverty alleviation and biodiversity benefits, ecosystem resilience and the linkages between adaption and mitigation, and should promote and support social and environmental safeguards. In order to reach this objectives, EU REDD+ initiatives should help countries to prepare for the implementation of a national REDD+ mechanism that support the design and the implementation of sustainable forest and land use policies, that develop and implement equitable benefit sharing mechanisms, that clarify and secure tenure and access rights of local communities and indigenous people to forests and forest carbon and address the drivers of deforestation and forest degradation. Funding of such activities should be in line with overall EU commitment, taking account of the outcomes and lessons learned of the REDD+ related initiatives that the European Commission had set up or supported and other relevant processes.

4.2. RENEWABLE ENERGY POLICY

4.2.1. INTRODUCTION

A total of 20% of European energy consumption to be met from renewable sources by 2020: this is the target the EU set itself in 2007. To achieve this objective the EU has adopted measures aimed at promoting renewable energy sources and developing the markets in the biomass and biofuel sectors, among others.³ The Renewable Energy Directive⁴ establishes a common framework for the use of

³ http://europa.eu/legislation_summaries/environment/tackling_climate_change/index_en.htm

⁴ Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources

energy from renewable sources in order to limit greenhouse gas emissions and to promote cleaner transport. To this end, national action plans are defined, as are procedures for the use of biofuels.

The Renewable Energy policy area potentially affects global land use by increasing the demand for biofuel and biomass via its target for increased renewable energy production in the EU. Such targets could lead to increased demand for certain oilseed crops or for solid biomass. Besides this direct impact, there is a potential indirect impact by displacements of food crops, requiring them to be sourced from elsewhere. It is unlikely that the land use demand for biofuels would lead to deforestation, because the EU targets for Renewable Energy production are made conditional on the meeting of sustainability criteria for the biofuels used. It cannot be excluded however that the indirect land use by displacement of food crops may lead to deforestation. Because this policy area potentially affects (1a) the land use impact of the production of primary commodities at source (oil crops and solid biomass); (1b) the deforestation impact of related indirect last use and (3) the supply chain of the above commodities (i.e. biofuel crops and solid biomass) the policy therefore satisfies criteria 1a, 1b and 3 and will be included for more detailed analysis below.

In the task 2 report on the impact of EU consumption of food and non-food imports on deforestation, it was shown that oil crops are of paramount importance for passing on embodied deforestation from the country of origin to the rest of the world, and even more so for the EU.

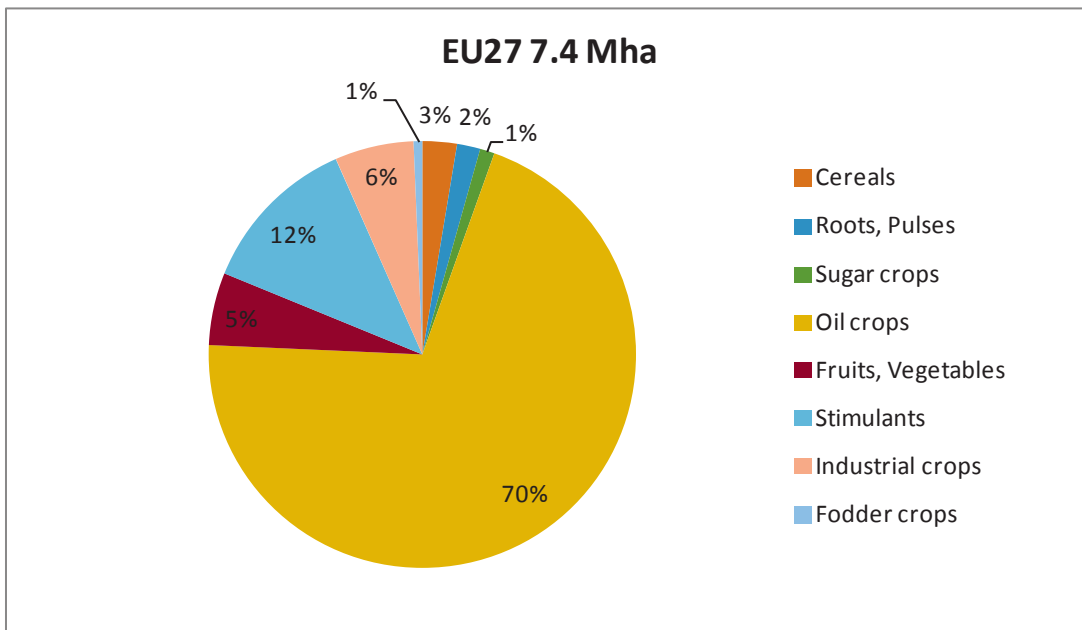


Figure 7 Cumulative deforestation embodied in EU27 crop consumption by crop group, 1990-2008 (note that 0.2 Mha is re-exported in livestock products)

In the EU, more and more imported vegetable oils end up in the industrial non-food sector, mainly for transformation to biofuels. Imported soybeans, soybean oil and palm oil are associated with deforestation in countries like Brazil and Indonesia. While vegetable oils for the energy industry have been mainly sourced from domestic crops like rapeseed, the amount of soybean oil and palm oil used in the biofuel industry has doubled or tripled between 2004 and 2011. At the same time, the use of the latter two vegetable oils by the food industry has remained rather stable. The Biofuel Directive (2003/30/EC) with regard to the use of biofuels in transport is generally acknowledged as the driver behind this increased use of vegetable oils for the production of biodiesel.

In the same report, it was also mentioned that the increasing application of wood for energy purposes might pose a threat to forests in third countries. While international trade in wood for electricity and heating purposes has been relatively modest up to now, it is increasing fast. This could pose another claim on forest resources, incentivize forests to be converted into plantations or replace other land uses (IIED, 2011) and thereby possibly induce indirect land use change into forests.

4.2.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

→ Introduction

The use of biomass for energy and energy production from the biodegradable fraction of products, waste and residues from biological origin from agriculture and forestry, constitute an additional demand on land. In case not enough cropland is available, they can cause land conversion (EEA, 2008⁵; Al-Riffai et al., 2010). As solid biomass for stationary energy applications is concerned, the main effect of the wood-for-energy revival is on the state of forests. Forests can be stripped from a large part of their wood and still be classified as forest, thus not as deforested. Therefore, specific sustainability criteria have been introduced or are being considered alongside the recent policies that drive an increased application of bioenergy due to the promotion of renewable energy.

→ Relevant Legislation and Policy instruments

The main legislation and other instruments governing this policy are described below.

Although some member states already had national incentives in place to increase the share of biofuels in transport, EU-wide legislation with minimum proportions of bio- and other renewable fuels on member states' markets was introduced in 2003 (Lamers et al., 2011). **The Biofuels Directive** (European Commission, 2003a) set indicative targets for 2005 and 2010 of 2% and 5,75% respectively of biofuels used in transport. Due to the fact that the intermediate target for 2005 was not reached, and because of the increasing debate around the sustainability of biofuels, not yet properly addressed in the Directive, new legislation was triggered and legislation on biofuels was taken up in the Renewable Energy Directive in 2009.

The **Renewable Energy Directive** (European Commission, 2009a), in brief, sets renewable energy targets for all member states, to reach an EU-wide 20% share of energy from renewable sources by 2020. For the transport sector a 10% share of renewable energy is set. This mandatory target for the transport sector is to be achieved from renewable sources as a whole, and not from biofuels alone. Additional incentives were introduced to specifically promote electric road vehicles within the transport sector. However, the analysis of National Renewable Energy Action Plans (NREAPs) of the member states points out that 92% of the renewable energy target in the transport sector will be met with an increased application of biofuels (Bowyer, 2011). For biofuels used in the transport sector, those that are produced from waste, residues, non-food cellulosic material, and ligno-cellulosic material also receive an additional incentive, i.e. they count double towards the target.

National policies to develop existing biomass resources and mobilise new biomass resources for different uses, are to be included as measures to achieve the national targets in the NREAPs. The

⁵ EEA news: Suspend 10 percent biofuels target, says EEA's scientific advisory body <http://www.eea.europa.eu/highlights/suspend-10-percent-biofuels-target-says-eeas-scientific-advisory-body>

preamble paragraphs of the Directive further mention that in order to exploit the full potential of biomass, the EU and its member states should promote greater mobilisation of existing timber reserves and the development of new forestry systems.

For the transport sector, the Renewable Energy Directive is complemented by the **Fuel Quality Directive** (European Commission, 2009b), which lays down GHG emission reduction targets for the fuel suppliers and the same sustainability criteria as in the Renewable Energy Directive.

In this chapter, a brief overview is given of the regime in place to assure the sustainability of an increased deployment of bioenergy, with a specific focus on the issue of land use and deforestation. First of all, biofuels for transport and bioliquids are treated. After that, solid and gaseous biomasses are dealt with, as they are subject to other regimes under the Renewable Energy Directive. This section ends with a conclusion on the effect of these policies and the mitigating measures installed to avoid deforestation.

→ **Biofuels for transport and bioliquids**

For liquid and gaseous biofuels for transport and for bioliquids, article 17 of the Renewable Energy Directive (European Commission, 2009a) requires biofuels to meet a set of sustainability criteria in order for them to count towards the national targets in the Directive, count towards renewable energy obligations, or to receive financial support for their consumption.

To avoid conversion of forests due to the production of biofuels and bioliquids, specific criteria within the sustainability criteria were introduced. These criteria apply when biofuels or bioliquids are produced within the EU or imported. Biofuels and bioliquids shall not be produced from land with high biodiversity values, land with high carbon stocks or undrained peat land (in the scope of this study: undrained peat forests). The criteria refer to the status the land had in January 2008. The criteria specifically exclude primary forest and other wooded land, areas for nature protection and the protection of rare, threatened and endangered species and continuously forested areas (with explicit forest definitions similar to those used by the FAO and within the framework of the UNFCCC).

Additionally, the GHG emissions saved from the use of biofuels and bioliquids shall be at least 35% and at least 50% from 2017 (and 60% from 2018 for new installations).

For the calculation of these emission savings, article 19 establishes the calculation method. Based on the established calculation methods, as set out in Annex V of the Renewable Energy Directive, some of the biofuels and bioliquids that are not saving enough emissions (eventual land use change emissions included) might pose a threat to forests already ruled out by the minimum GHG emission savings required due to high emissions in their production processes and/or high emissions from land use change. In addition, no biofuels may come from areas of high biodiversity value or areas with high carbon stocks, like forest and wetlands.

In relation to forest conversion the clause on indirect land-use change (iLUC) requires particular attention. While the emissions from direct land-use change, i.e. where biofuel cropping is taken place on land recently being changed into cropland, the resulting emissions are included in the calculation of the total GHG emissions and thus avoid deforestation (moreover, biofuel production on land recently deforested is not allowed by the land criteria). However indirect land-use change emissions (iLUC) are not included in the GHG methodology. iLUC takes place when biofuels are cultivated on existing agricultural land, and as such displace other crop production of which some ultimately leads to land-use change taking place elsewhere. For that purpose, the Directive required the submission by the Commission of a report assessing the impact of iLUC on GHG emissions and addressing ways

to minimize that impact. If appropriate, the report was to be accompanied by a proposal containing a concrete methodology for the inclusion of GHG emission calculations from iLUC.

The report, due by 31 December 2010, concluded that a number of deficiencies and uncertainties associated with the modelling, which were required to estimate the impacts, remain to be addressed. This could have significant impact on the results of the analytical work carried out to date (European Commission, 2010b).

The iLUC report mentions that if conversion of carbon rich areas were to be limited or if more agriculture commodities were subject to sustainability criteria comparable to those laid down for biofuels, indirect land-use change could be limited since the iLUC effect of biofuels is the direct land-use change of another commodity (see also IFPRI, 2011). The methodology used in task 2 is attributing deforestation to various products and therefore to direct land use. If the deforestation impact of all products were summarized, then the result would be identical to the global level of deforestation. No modelling of iLUC was performed under this research. That said, and although the methodology is different, the latest science on indirect land-use change emissions is reporting results that points in the same direction as the work done under task 2, namely that the consumption of vegetable oils like soybean and palm oil is associated with risks of land use change and deforestation.

The import of oil crops for EU consumption proved to be of major impact on deforestation. Moratoria, land-use planning and certification initiatives were developed in Brazil, Argentina and Indonesia. As the analysis in task 2 for the year 2004 pointed out, though, this deforestation caused by EU consumption of oil crops was mainly due to other applications of these oil crops, i.e. the food sector and the meat/feed sector. The initiatives developed because of criticism on biofuels could, however, have spill-over effects to other applications of the oil crops. Some of the moratoria have even been installed regardless of the final applications of these oil crops. The most recent data on the use of vegetable oils by the non-food industrial sector show that this use has changed rapidly between 2004 and 2011. The non-food industrial use of vegetable oils is on the rise, not only under the form of using of European rapeseed oil for biofuels, but also under the form of using more and more soybean oil and palm oil for this purpose.

Meanwhile, many certification schemes have been developed and recognised by the Commission⁶ in order to ensure compliance of biofuels with the sustainability criteria set out in the Directive.

Conclusions

While it is acknowledged that the policy-driven demand increase for biofuels has directly or indirectly caused deforestation in the last decade because of an increased demand for biofuel feedstock (e.g. IFPRI 2011), the above criteria should allow for direct deforestation to be avoided. When imported biofuels or feed stocks for these biofuels meet the criteria and the acknowledged certification schemes operate accordingly in a reliable, transparent and independent way, this would be the case.

At the same time, while the sustainability standards and certification schemes have been developed for biofuels, and for the scope of compliance with the Directive, the criteria set out are equally relevant for other applications of agricultural products and biomass. The GHG emission saving criterion might be less relevant. If deemed relevant for sustainable imports of agricultural products and biomass for other applications than energy, this could be further investigated and evaluated in task 4 of this study.

⁶ See complete list here: http://ec.europa.eu/energy/renewables/biofuels/sustainability_schemes_en.htm

→ **Solid and gaseous biomass (mainly wood or more specifically wood pellets)**

Solid and gaseous biomass is originating from agricultural crops and residues (e.g. maize, straw, animal manure), from forestry (e.g. logs, stumps, leaves and branches), wood processing industries (bark, off-cuts, wood chips, and sawdust) and from organic waste (e.g. municipal solid waste, post consumer recovered wood, refuse-derived fuels, sewage sludge). It can be virtually any organic material. Many of these feed stocks can also be used for producing transport biofuels or bioliquids used in electricity and heating and cooling (European Commission, 2010c).

For the purpose of this chapter, it is mainly the solid biomass from forestry that is relevant, as the other origins are – currently – mainly by-products and waste from existing production processes for other applications. As long as these by-products or waste do not constitute the decisive factors for a production process to be continued or expanded, they cannot be considered a driver of additional land demand and/or deforestation or forest degradation.

In task 2 a demand increase of up to 318 m³ RWE (= round wood equivalent) from forests between 2010 and 2020 was calculated, based on simple assumptions to convert primary energy production into wood volumes. Due to incomplete information from the NREAPs, it is unclear to what extent this additional demand will be sourced from European forests and what part would be sourced from forests beyond EU27 borders. The European Commission (2010) states that the bulk of this bio-energy will be in the form of wood pellets from forest-based industries, increasingly coming from outside the EU (see also Sikkema et al., 2011). While in theory the EU could supply these wood pellets domestically, it is quite likely that imports will increase. IEA Task 40 (2011) estimates that the EU demands for wood pellets will more than triple by 2020 compared to the demand in 2010, and this against a background of increasing global demand. International trade of wood pellets is expected to increase by 2020 to levels between 5 or 14 times the level of 2010.

Concerns have been expressed regarding the expansion of international trade of biomass and increasing imports from third countries. This expansion may lead to the unsustainable production of biomass, i.e. forest degradation and deforestation. Due to the lack of common principles and criteria for sustainable forest management on a global level, and due to the lack of the verification of the actual compliance of forest management with these principles, the verification of the production of sustainable forest biomass can only rely upon voluntary forest certification schemes. Yet the uptake of these schemes at a global level is still limited. For these reasons sustainability criteria might be useful to avoid deforestation and forest degradation. The Renewable Energy Directive, however, only included sustainability criteria for liquid and gaseous biofuels for transport and bioliquids (see above). Article 17 states that the Commission should report on requirements for a sustainability scheme for the energy use of biomass other than biofuels and bioliquids (i.e. solid and gaseous fuels in electricity, heating and cooling). The Commission is currently assessing again whether bringing sustainability criteria for solid and gaseous biomass should be introduced after the model of the sustainability criteria already in place for biofuels (see above)

The provisions on land use and land-use change, namely LULUCF and REDD+ within the framework of the UNFCCC, are expected to provide additional safeguards. These could help addressing land use related to sustainability issues in third countries. The rules, however, are not yet in place at the international level. .

In anticipation of the announced reporting by the Commission on how international climate change negotiations and other policy developments including LULUCF accounting and REDD+ relate to sustainable production of biomass, it can already be noted that the EU becomes more and more isolated as the sole Annex I party advocating a second commitment period of the Kyoto Protocol.

Canada, the biggest supplier of wood pellets imported in the EU, withdrew from the Kyoto Protocol and thus the LULUCF accounting in the aftermath of the UNFCCC CoP in Durban.

Conclusions

As mentioned above, the use of wood for modern energy applications constitutes rather a threat to the state of forests (degradation) than a threat as a deforestation driver, except where natural forests are replaced by plantations. Still, if this policy-driven revival provides too much incentive without the necessary sustainability criteria to avoid forest conversion, deforestation could still take place.

While there is no obligation at EU level to install criteria for woody biomass for energy, member states that wish to do so are recommended to use the criteria from biofuels and bioliquids, with some practical differences. The provisions on land use and land-use change, namely LULUCF and REDD+ within the framework of the UNFCCC, are expected to provide additional safeguards. Improper future LULUCF accounting and an ill-designed future REDD+ mechanism without the necessary provisions to avoid forest degradation and conversion of natural forests into plantations could increase the impact of the Directive on forests.

Additional guidance is anticipated and the Commission may consider the introduction of a procedure to address potential sustainability problems.

4.2.3. CONCLUSION

The analysis in the former task of this study pointed out the importance of the consumption of vegetable oil imports on the EU impact on global deforestation in the past. Due to many data limitations related to the recent nature of the phenomenon of modern bioenergy, the exact contribution of the use of vegetable oils for bioenergy applications could not be directly assessed. The share of biofuels is believed to be in the order of a few percent of total consumed oil crop commodities (see e.g. UNEP, 2009), though recent expansion of cropland for oil crops was mainly driven by increased demand for biofuels (see e.g. UNEP, 2009; van Gelder and German, 2011).

The increased use of biofuels from vegetable oils has thus been a driver of deforestation, but in the meantime sustainability criteria have been introduced to reduce or avoid this impact.

The issue of iLUC still needs to be solved, but it is interesting to note that the problem can be solved partially by applying sustainability criteria to other applications for agricultural products and biomass. The use of wood for modern energy applications constitutes a threat to the state of forests (degradation) rather than a threat as a deforestation driver. If this policy-driven increase provides too much incentive, sustainability criteria for solid and gaseous biomass can be introduced to avoid forest conversion and deforestation.

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CHAPTER 5 AGRICULTURE, FORESTRY AND BIODIVERSITY

Both the EU Common Agricultural Policy (CAP) and the EU Forestry Strategy attach high importance to developing the multifunctional role of agriculture and forests, going beyond the production of foodstuffs and raw materials to managing the countryside and protecting the environment. These objectives are outlined in Council Regulation No 1257/1999 and amending acts, the Biodiversity Action Plan for Agriculture (European Commission, 2001), Council Regulation No 1698/2005 and Council Decision 2006/144/EC and amending act. These regulations all mark a gradual shift in focus (farmers have to focus on environmental protection and on the quality, rather than quantity of production) which goes hand in hand with the EU biodiversity objectives in the EU Biodiversity Strategy 2020 (European Commission, 2011). Apart from the impact on land use within the EU, the policies on agriculture, forestry and biodiversity also include measures that have a more direct effect on (deforestation in) third countries.

From the perspective of the final use of embodied deforestation, crops can serve different purposes. The below figure from the task 2 report on the impact of EU consumption of food and non-food imports on deforestation reveals the importance of forest clearing for beef production. Of the 127.6 Mha, 49% of deforestation is embodied in livestock products from beef production, 8% in feed crop products for pig and poultry livestock products, and 43% of embodied deforestation is used for food of vegetable origin, fuel and fibres.

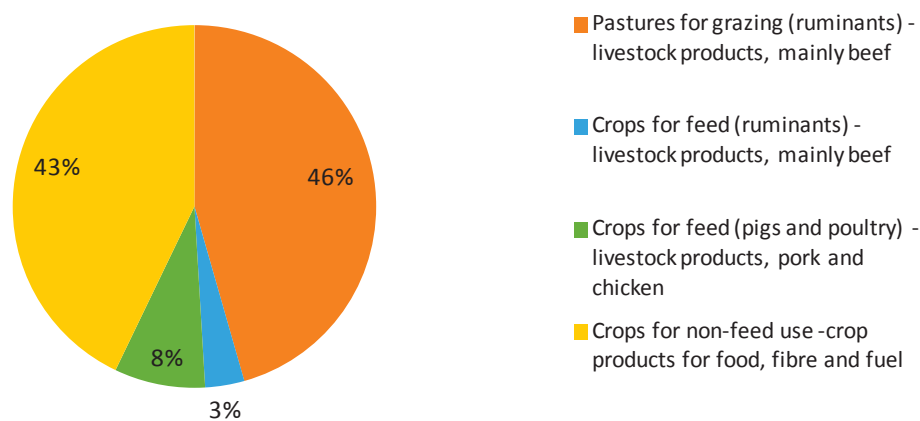


Figure 8 Deforestation embodied in agricultural commodities (crops for food, feed, fuel and fibres, and livestock products from ruminants, pigs and poultry) for the period 1990-2008

To conclude, the consumption of livestock products from ruminant animals fed on grazing land (mainly beef), is the most important driver of deforestation on a global scale (52.8 Mha). Second is the agricultural crop sector, subdivided in commodities: soybeans (13.4 Mha), maize (7.5 Mha), oil palm (5.5 Mha), wood products (4.5 Mha), rice (4.3 Mha), and sugar cane (3.3 Mha).

5.1. AGRICULTURE

5.1.1. INTRODUCTION

The Common Agricultural Policy (CAP) is due to be reformed by 2013. After a wide-ranging public debate, the Commission presented on 18 November 2010 a Communication on "The CAP towards 2020", which outlines options for the future CAP and launched the debate with the other institutions and with stakeholders. On 12 October 2011, the Commission presented a set of legal proposals designed to make the CAP more effective for a more competitive and sustainable agriculture and vibrant rural areas (EC 2011a, b, c, d, e, f, and g). The proposals are accompanied by an impact assessment (EC 2011h).

In order to promote resource efficiency with a view to smart, sustainable and inclusive growth for EU agriculture and rural development in line with the Europe 2020 Strategy, the objectives of the reformed CAP are:

- 1) Viable food production;
- 2) Sustainable management of natural resources and climate action;
- 3) Balanced territorial development.

The CAP is primarily targeting land use and food production within the EU (domestic land use), which has an indirect impact on land use and deforestation outside the EU. The CAP also includes policy measures on market instruments and trade, which influences the supply and import of food crops and commodities from third countries into the EU. The CAP therefore meets the criteria 1a - Reduce the land use impact of the production of primary commodities at source; 1.b. Reduce the level of deforestation impact of the production of those primary commodities; and 3. Contribute to the supply chain of products with low deforestation impact.

5.1.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

In this section the main CAP reform proposals are presented and analysed that are linked with the scope of the study.

Direct payments for Greening measures

A Basic Payment Scheme will apply after 2013, moving in all Member States to a uniform payment per hectare, without a direct link to current production, at national or regional level by the start of 2019.

In addition to the Basic Payment, the CAP reform proposes direct payments for agricultural practices beneficial for the climate and the environment. The three 'greening measures' foreseen are (EC 2011a):

- a) Crop diversification: a farmer must cultivate at least three different crops on their arable land where the arable land of the farmer covers more than 3 hectares and is not entirely used for grass production (sown or natural), entirely left fallow or entirely cultivated with crops under water for a significant part of the year (Article 30);
- b) Maintaining (existing) permanent pasture (Article 31);
- c) Maintaining an 'ecological focus area' of at least 7 % of farmland (excluding permanent grassland) – i.e. field margins, hedges, fallow land, terraces, landscape features, buffer strips and afforested areas (Article 32).

All three measures will have an impact on land use (efficiency) within the EU, with implications for land use and deforestation outside the EU. The first two measures may lead to a lower dependency from imported crops, including meat. Incentivizing crop diversification has the potential to grow feed crops (e.g. as an alternative for imported soy), and maintaining permanent pasture combined with

incentivizing farmers to go back to cattle grazing may lower the EU meat import from third countries. The third measure could limit the production potential within the EU. However, it is increasingly recognized that maintaining vital ecosystem services through protection of a green infrastructure is crucial for sustaining healthy agricultural production on the long term.

Coupled payments

The general direction of the proposed CAP reform is to phase out coupled payments. Such payments linked to a specific product, may only be granted to sectors or to regions of a Member State where specific types of farming or specific agricultural sectors undergo certain difficulties and are particularly important for economic and/or social and/or environmental reasons. Coupled payments may only be granted to the extent necessary to create an incentive to maintain current levels of production in the regions concerned (EC 2011a, Article 38). The level of payments will be limited to 5% of the national envelope if the Member State currently provides 0-5% of coupled support, or up to 10% if the current level of coupled support is higher than 5% (Article 39). The Commission may approve a higher rate if the Member State can show it justified.

Coupled support may be granted to the following sectors and productions: cereals, oilseeds, protein crops, grain legumes, flax, hemp, rice, nuts, starch potato, milk and milk products, seeds, sheep meat and goat meat, beef and veal, olive oil, silk worms, dried fodder, hops, sugar beet, cane and chicory, fruit and vegetables and short rotation coppice.

The coupled payments will mostly affect land use within the EU, with indirect impacts on land use outside EU.

Common Organisation of markets - Trade with third countries

A number of CAP instruments related to agricultural markets and trade are relevant to some degree. Measures related to the internal market, primarily acting as a safety net, and measures on trade with third countries (EC 2011b). The overall objective of the CAP reform is to limit (use of) market measures to a safety net rather than a permanent intervention system.

The existing systems of public (price) intervention and private storage aid are proven safety net mechanisms to help producers at times of market difficulties following for example a food crisis. The CAP reform proposes revisions to respond to general market disturbances. A key principle includes that interventions may not lead to market distortions (EC 2011e, Article 15). Public intervention at fixed prices remains in principle for cereals, beef and veal, and butter and skim powder, but only for quantities fixed in advance or at very low prices. The impact on deforestation in third countries of these measures is assessed to be low.

More impact can be expected from (reforms in) trade measures with third involving import tariffs and export subsidies. Article 123 (EC 2011b) states that 'the Commission may, by means of implementing acts, determine the products of the cereals, rice, sugar, fruit and vegetables, processed fruit and vegetables, beef and veal, milk and milk products, pig meat, sheep meat and goat meat, eggs, poultry and bananas sectors, as well as of grape juice and grape must, to which, when imported subject to the rate of duty laid down in the Common Customs Tariff, an additional import duty shall apply in order to prevent or counteract adverse effects on the Union market which may result from those imports, if: (a) the imports are made at a price below the level notified by the Union to the WTO (the trigger price); or (b) the volume of imports in any year exceeds a certain level (the trigger volume).' Most favored nation tariffs (MFN) are still high, e.g. 54.6% for milk, 34.6% for grains and 32.5% for meat (Cantore et al, 2011). Import tariffs constitute a key measure of protection not covered by CAP reform but it is being negotiated in the Doha trade negotiations and is affected by EU free trade (FTA) negotiations (see also chapter 8). Inclusion of environmental criteria in these negotiations and reforms is highly relevant to the subject of the study. The CAP reform proposes a

reduction of export subsidies and the EU has offered to end them as part of its Doha offer (Cantore et al, 2011). Both lowering of import tariffs and removal of export subsidies could trigger higher production levels in third countries and cause higher deforestation, enhancing the need for inclusion of sustainability criteria in trade agreements.

Support for Rural development

This CAP component or Pillar 2 complements the direct payments and market measures (Pillar 1). The European Agricultural Fund for Rural Development (EAFRD) will fit into the new Common Strategic Framework to achieve the objectives of the Europe 2020 Strategy: ‘Sustainable Growth, SMART Growth, Inclusive Growth). The basic idea from the current Rural Development concept of multi-annual schemes designed and co-funded by Member States (or regions) remains the same. However, instead of 3 axes linked to economic, environmental and social issues, the reformed CAP will focus on six priorities for rural development (EC 2011c, Article 5):

- 1) Fostering knowledge transfer and innovation in agriculture, forestry and rural areas;
- 2) Enhancing competitiveness of all types of agriculture and enhancing farm viability;
- 3) Promoting food chain organization and risk management in agriculture;
- 4) Restoring, preserving and enhancing ecosystems dependent on agriculture and forestry;
- 5) Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors;
- 6) Promoting social inclusion, poverty reduction and economic development in rural areas.

All of the priorities shall contribute to the cross-cutting objectives of innovation, environment and climate change mitigation and adaptation.

The combined six priority areas have the potential to contribute substantially to a sustainable production landscape in the EU, and integrating biodiversity, water and food security, and climate change into a coherent policy and action programme. Much depends on the exact choices that will be made for targeting the subsidies/payments, and how the various ‘competing claims’ for land will be addressed and settled. The priorities have a clear linkage with the criteria of the study, i.e. land use impact at the source (1a) and also indirectly affecting land use and deforestation outside EU. Priority areas 3 and 5 have also a link to the assessment criterion 3. Reduce the embedded deforestation of products produced.

5.1.3. CONCLUSION –

The following conclusions are the author’s reflection based on the on-going discussions and feedback on the CAP reform. The final decisions on CAP reform in 2013 will have consequences on deforestation outside EU. However, as also appears from the above analysis, it is difficult to assess the overall impact as the various proposed measures have different, mostly indirect impacts on deforestation outside EU. A main challenge is to achieve the dual objective of meeting an increasing global food demand and better protecting the environment. Sustainable land use should become the key objective of the CAP. This includes biodiversity protection, climate change mitigation and responsible water management. The EU should promote global food security through an open trading system, support for sustainable agricultural productivity in developing countries, climate change mitigation and the preservation of its own sustainable production capacity. To enhance productivity, more public investment in research and development should be undertaken and results shared with third countries. European agricultural policies may impact land use and deforestation in third countries through various CAP instruments and interactions. Measures that enhance the productivity within the EU could help reducing deforestation in third countries. Besides the proposed phasing out of import tariffs and export subsidies, of which the ultimate impact on deforestation is hard to predict, the EU could integrate sustainability criteria in its trade relations and agreements with third countries.

5.2. FORESTRY

5.2.1. INTRODUCTION

The Council Resolution on a forestry strategy for the European Union was adopted in 1998 (EC 1998). It established a framework for forest-related actions in support of sustainable forest management. An EU Forest Action Plan 2006–2011 (FAP) was adopted in 2006 (EC 2006). There is no provision for a common EU forest policy in the Treaty, and forestry remains a Member State competence. Both FAP and the Forest strategy are voluntary agreements.

The overall aim of the FAP is to support and enhance sustainable forest management and the multifunctional role of forests. The Forest Strategy and the FAP are currently under review and preparations are under way to develop a new Forest Action plan, to be integrated in the Europe 2020 Strategy.

The EU Forest policy and action plan contains various elements that have a potential direct impact on deforestation and indirectly through the supply. It therefore satisfies the following criteria:

- 1.b. Reduce the level of deforestation impact of the production of those primary commodities;
2. Reduce the embedded deforestation of products produced;
3. Contribute to the supply chain of products with low deforestation impact.

5.2.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

FLEGT

In addition to the objectives and actions targeted at the EU forests and forestry, the FAP includes a few actions with direct relevance for forests and deforestation in third countries. Under key action 16 'Strengthen the EU profile in international forest-related processes', the implementation of the FLEGT⁷ Action plan is most relevant. FLEGT represents a comprehensive and ambitious attempt to reduce the extent of illegal logging in production countries. Measures focus on seven broad areas, including: support to timber exporting countries; activities to promote trade in legal timber; promoting public procurement policies; adaptation and use of appropriate legislative instruments, e.g. the EU Illegal Timber Regulation, and addressing the problem of conflict timber. Voluntary Partnership Agreements (VPA) between the EU and the timber producing countries are a central pillar of FLEGT. VPAs are legally binding bilateral trade agreements setting out actions that the EU and timber exporting countries need to take to tackle illegal logging. Currently six countries are developing systems agreed under a VPA (Cameroon, Central African Republic, Ghana, Republic of Congo, Indonesia, Liberia) and four countries are negotiating with the EU (Gabon, DR Congo, Malaysia, Vietnam).

FLEGT is considered a successful EU policy model as it combines a coherent package of policies and measures, both hard and soft, and targeting the whole supply chain from production to trade and procurement/consumption. Improving forest governance lies at the heart of FLEGT. The EU FLEGT Action Plan considers illegal logging a symptom of bad governance and that to address it, work needs to focus first and foremost on improving governance. Strengthening land tenure rights and access rights for forest dependent communities, increasing transparency, strengthening effective participation of all stakeholders, notably of civil society groups and indigenous peoples, and reducing corruption are all key elements of the VPA (FERN 2010). Expanding and strengthening FLEGT has a potential to reduce the level of deforestation in the timber producing countries.

REDD+

⁷ FLEGT: Forest Law Enforcement Governance and Trade

Another relevant 'forest' policy measure is 'Reducing Emissions from Deforestation and forest Degradation': the REDD instrument developed under the international climate change policy framework UNFCCC. It is analysed in chapter 5 Climate and renewable energy policy.

Woody biomass

Key action 4 of the FAP 'promoting the use of forest biomass for energy generation' has gained importance. The EU plans to produce over half of its renewable energy from biomass by 2020, which is over 10 percent of its total energy consumption. Although the majority is produced in forests within the EU countries, import of woody biomass (wood pellets) from outside the EU is becoming an important source and will grow in the future (Sikkim et al, 2011, Hewitt 2011). The main exporting countries to the EU are the USA, Canada and Russia. Latin America, in particular Brazil and Southern Africa are considered as potential sources for woody biomass to the EU (Hewitt 2011). This increased EU demand for biomass in 2020 risks to cause a further acceleration of deforestation and forest degradation worldwide.

5.2.3. CONCLUSION

The EU Forest Action Plan contains various elements and measures that contribute to halt deforestation in third countries, most notably FLEGT. They either have a more direct effect, i.e. FLEGT and REDD, or they work in a more indirect way. The latter category involves measures that have the objective to improve the long-term productivity of EU forests and in this way could release the pressure on forests in third countries. FLEGT aims at contributing to improve forest governance in third countries, and could help reduce deforestation. In general, the coherence with other policy areas, e.g. trade, energy and development, needs to be enhanced.

5.3. BIODIVERSITY

5.3.1. INTRODUCTION

In 2011, the European Commission elaborated the EU Biodiversity Strategy 2020 (EC, 2011) as a response to the commitments taken by the European Heads of State as well as commitments taken in the context of the 10th Conference of the Parties (CoP10) of the CBD, held in Nagoya in 2010. This strategy is aimed at halting biodiversity loss and the degradation of ecosystems service and restoring them as far as possible. It is closely connected to the Europe 2020 strategy, and in particular the flagship initiative for a resource-efficient Europe. Concretely the EU 2020 headline target is: "halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss". Therefore the Strategy includes both European and global dimensions. As a broad strategy or framework for action it contains various types of hard and soft policy measures and actions.

The biodiversity strategy is aimed at halting the loss of biodiversity. Outside EU, deforestation is a major cause of biodiversity loss. The strategy contains elements or actions that are directly targeted at improving land use and halting deforestation and elements that target the key drivers of deforestation, i.e. trade and consumption patterns. It therefore meets the following criteria:

- 1a. Reduce the land use impact of the production of primary commodities at source
- 1.b. Reduce the level of deforestation impact of the production of those primary commodities;
2. Reduce the embedded deforestation of products produced;
3. Contribute to the supply chain of products with low deforestation impact
4. Increase consumer demand for commodities and products with low deforestation impact within the EU.

5.3.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

In this section the relevant actions of the Biodiversity strategy linked to the criteria are highlighted.

The 2020 Biodiversity strategy includes six mutually supportive and interdependent targets that respond to the objectives of the 2010 headline target. Besides maintaining and restoring biodiversity within the EU itself – 5 out of 6 targets – one target is aimed at maintaining global biodiversity outside the EU. Related to every 2020 target of the 2020 Strategy, a package of actions has been designed. Some of these are of particular relevance for this study, i.e. have implications with regard to pressures on forests in third countries (see Table 2).

The Strategy recognises the responsibility of the EU, through its consumption and production patterns, in the loss of global biodiversity. In particular one of the most relevant elements most relevant in the Strategy is the Action 17 which aims at reducing indirect drivers of global biodiversity loss. It is worth highlighting the Action 17 a) that states that the EU will take measures to reduce the impacts of EU consumption patterns, particularly for resources (or commodities) that have a significant impact on third countries biodiversity. This could include demand or supply side measures.

Table 2 Selected EU Biodiversity Actions and possible impacts on pressures on forests in third countries

EU Biodiversity actions	Potential for reducing pressures on forests in third countries
<p><i>Target 1: Fully implement the Birds and Habitat directives</i></p> <p>Action 1: Complete the establishment of the Natura 2000 network and ensure good management</p>	<p>Positive: The Natura 2000 network is a leading example in protected areas design and management and it can inspire other third countries to emulate this legislation and thus protect their forests building on lessons learned in Europe.</p> <p>The Natura 2000 network also shows how it is possible to couple nature conservation and protected areas with a sustainable use of the land for sustainable agriculture or forestry. The designation of the Natura 2000 network is nearly finished in the EU and socio-economic activities are allowed in most Natura 2000 areas (predominantly IUCN categories IV and V).</p>
<p><i>Target 2: Maintain and restore ecosystems and their services</i></p> <p>Action 5: Improve knowledge of ecosystems and their services in the EU (includes assessing the economic value of ecosystem services and promote the integration of these values into EU and national accounting by 2020)</p> <p>Action 6: Set priorities to restore and promote the use of green infrastructure</p> <p>Action 7: Ensure no net loss of biodiversity</p>	<p>Positive: Restoration of degraded ecosystems in the EU will allow to secure a better supply of ecosystem services on site and thus rely less on ecosystem services provided by forest outside of the EU. In addition, adequate valuation of the ecosystem services provided by natural forests and integrate these values into national accounts of third countries could contribute substantially to halt deforestation.</p>

<p><i>Target 3: Increase the contribution of agriculture and forestry to maintaining and enhancing biodiversity</i></p> <p>Actions 8 - 11</p>	<p>Mixed / Positive: more sustainable agriculture and forestry systems within the EU will assure a long-term provision of food, feed and timber for the EU market.</p>
<p><i>Target 6: Help avert global biodiversity loss</i></p> <p>Action 17: Reduce indirect drivers of biodiversity loss, through:</p> <p>17a: Under the EU flagship initiative, the EU will take measures to reduce the biodiversity impacts of EU consumption patterns, particularly for resources that have significant negative impacts on biodiversity</p> <p>17b: enhance the contribution of trade policy to conserving biodiversity and address potential negative impacts</p> <p>17c: to provide the right market signals for biodiversity conservation, including reforming, phasing out and eliminate harmful subsidies, and to provide positive incentives for biodiversity conservation and sustainable use</p> <p>Action 18: Mobilise additional resources for global biodiversity conservation</p> <p>Action 19: ‘Biodiversity proof’ EU development cooperation</p>	<p>Very Positive: the EU actions targeted to maintain biodiversity outside the EU have the highest potential to reduce pressures on forests in third countries and include measures that reduce demand in the EU and measures that support more sustainable production in the third countries.</p> <p>This Target also calls for a mobilisation of additional resources for global biodiversity so more funds also for the conservation of forests in third countries; It also announces that the Commission will support natural capital assessment in recipient countries, which would be very useful to properly value the economic importance of forests for the wealth of these countries and would thus contribute to stop deforestation.</p> <p>The Strategy also calls for the phasing out of biodiversity harmful subsidies which will also have a positive impact on forests.</p> <p>It also calls for biodiversity proofing EU development cooperation funds, which means that impacts on deforestation will be looked upon prior to the allocation of EU funds.</p> <p>The Implementation of the Nagoya Protocol on Access and benefit Sharing of the Use of Genetic Resources will mobilise substantial amounts of private funding that will in many cases be used for the conservation of the forest which are repositories of enormous amount of genetic resources</p>

5.3.3. CONCLUSION

The EU2020 Biodiversity Strategy is a crucial policy instrument to protect forests also outside of the EU. The Strategy includes targets and actions aiming at protecting global biodiversity, these can have a very strong positive impact on the conservation of forest in Third Countries (see above table). It can also be argued that even the targets and actions which aim at protecting European biodiversity are likely to have a positive impact for forests beyond the EU, as many of the actions, methodologies, models, principles developed for the EU (e.g. methodologies for the valuation of ecosystem services and integration in national accounting systems) are likely to be replicated to some extent in other countries and thus contribute to the protection of forests.

5.4. LITERATURE

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CHAPTER 6 SUSTAINABLE PRODUCTION AND CONSUMPTION

6.1. INTRODUCTION

The Communication on 'A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy' (European Commission, 2011a) states that natural resources underpin the functioning of the European and global economy and our quality of life. Pressure on these resources, among which land and forests, is high and still increasing, threatening both the environment and economic welfare. As spelled out in the Roadmap to a Resource Efficient Europe (European Commission, 2011b) Europe faces now the dual challenge of stimulating the growth needed to provide jobs and well-being to its citizens, and of ensuring that the quality of this growth can be sustained. The great challenge faced by economies today is to integrate environmental sustainability with economic growth and welfare by decoupling environmental degradation from economic growth and doing more with less. Realising this challenge is one of the key objectives of the European Union. To this end the promotion of sustainable production and consumption should facilitate improving the overall environmental performance of products throughout their life-cycle, boosting the demand for better products and production technologies and consumers in making informed choices.

Sustainable consumption and production policies potentially affect the efficiency of production in terms of the amount of land required (and therefore also third country deforestation) per unit of output and/or the deforestation embedded per unit of output as well as the demand for products and services with no and/or a lower deforestation impact. Also, increasing the resource efficiency throughout the entire supply chain by reducing waste as well as increasing the recycling and re-use of waste, reduces the demand for land and thus the pressure on forests. Sustainable consumption and production policies therefore satisfy criteria (1a), (1b), (2), (3) and (4).

Reduced consumption lowers the demand for productive land, both domestic and foreign, and that – everything else being equal – might result in a lower pressure on forests. However, the demand for productive land only drops when what is being consumed has not been produced less efficiently in terms of the land needed per unit of output. However, it is not only the absolute consumption which is important; the impact of our consumption on deforestation also depends on the deforestation footprint of the products we consume.

Sustainable consumption and production policy is mainly about creating the conditions for enabling and stimulating people to consume more sustainably. In that respect it should be noted that sustainable consumption and sustainable production are mutually reinforcing. Policies should address both the demand and the supply side.

As shown in task 2 of this study, 60% of the deforestation embodied in EU consumption is associated with the food sector. Food consumption, and to a lesser extent food production, will therefore receive special attention in the review of existing regulations and policies relating to sustainable consumption and production in this section. To start with, the Roadmap for a resource efficient Europe is referred to. Next, relevant policies addressing (the re-use of) food waste and related health issues, health policy and diet, enabling well-informed consumer choices, and green public procurement, are discussed.

6.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

6.2.1. ROADMAP FOR A RESOURCE EFFICIENT EUROPE

More generally, sustainable production is linked to the Europe 2020 strategy. Under that strategy, the flagship initiative for a resource-efficient Europe supports the shift towards a resource-efficient, low-carbon economy to achieve sustainable growth. The European Commission (2011a) states that resource efficiency is a key element to develop new products and services and to find new ways to reduce inputs, minimise waste, improve the management of resource stocks, change consumption patterns, optimise production processes, management and business methods, and improve logistics. The Commission also argues that a more efficient use of resources will help to achieve many of the EU's objectives (e.g. combating climate change, achieving a strong and sustainable agricultural sector, reducing reliance on scarce resources, etc.). Therefore, the flagship initiative on a resource-efficient Europe sets out a long-term framework for coordinating action in many policy areas, supporting policy agendas for climate change, energy, transport, industry, raw materials, agriculture, fisheries, biodiversity and regional development. The key components of the long-term framework come in the form of a series of coordinated roadmaps and initiatives on a low carbon economy, energy efficiency, tackling the challenges in commodity markets and on raw materials, the Common Agricultural Policy Reform, a sustainable bio-based economy by 2020, a strategy to make the EU a recycling society that uses waste as a resource, etc. (European Commission, 2011a)

The Roadmap for a Resource Efficient Europe accompanied the flagship initiative and aims at removing the barriers that remain unaddressed by sectoral policies. The Roadmap also aims to create a policy framework to improve the coherence across both existing and new policies by defining medium and long-term goals as well as the means needed for achieving them. (European Commission, 2011b and c)

Key changes needed to bring the economy onto a resource-efficient path include:

- boosting the material resource efficiency of products (e.g. reusability/recoverability/recyclability, recycled content, durability);
- turning waste and by-products into a resource;
- supporting research and innovation;
- phasing out inefficient subsidies; and
- getting prices right and reorienting the burden of taxation (European Commission, 2011b and c).

The Europe 2020 strategy and the Roadmap for a Resource Efficient Europe are not binding regulatory initiatives, but respectively a strategy and a framework with milestones for the design and implementation of future actions. These are valuable initiatives, but effectively realising the objectives that have been put forward is still something different. Whereas the roadmap does not address deforestation explicitly it encompasses complementary milestones on land use, food production and consumption and supporting resource efficiency internationally. (European Commission, 2011b)

6.2.2. POLICIES ADDRESSING (THE RE-USE OF) FOOD WASTE AND HEALTH

The 'consumption' of food in the EU27 is too high because much is wasted. The causes of that waste are mainly related to consumer behaviour (e.g. insufficient purchase planning by households), labelling policies, misinterpretation of or confusion over 'best-before-dates', lack of consumer knowledge and awareness on efficient food use and awareness, consumer preferences and attitudes, portion sizes, etc. (Gustavsson et al., 2011; Monier et al., 2010).

High 'appearance quality standards' from supermarkets for fresh products also lead to food waste. Similarly, large quantities on display and a wide range of products in supply trigger food waste. That increases the likelihood of products reaching their 'sell-by' date before being sold. Given the dominant retail sector policies with regards to unsold food products, unsold products often end up as waste. Other inefficiencies in the manufacturing, retail/wholesale and catering sector relate to inaccuracies in stock management, packaging problems and marketing strategies. By-products of industrialised food processing can in some cases be used for human consumption, but are often disposed. (Gustavsson et al., 2011; Stuart, 2009)

According to Gustavsson et al. (2011) around one third of food produced for human consumption is wasted globally. Annual per capita food waste generation in the EU27 is estimated at about 179 kg, of which around 42% can be attributed to household consumption (Monier et al., 2010). A study carried out in the UK by WRAP (2010) shows that some 60% of the food wasted by households can actually be avoided. Furthermore, food suitable for human consumption is wasted upstream in the supply chain. According to Monier et al. (2010) about 39%, 14% and 5% of food waste can respectively be attributed to food manufacturing, catering and retailing/wholesaling sectors.

The misinterpretation of and confusion over date labels are widely recognised for their contribution to food waste at the household level. In many member states the use of the terms 'best before', 'use by', 'sell by' and 'display until' lacks consistency while the consumers tend to treat all terms equally. (Monier et al., 2010).

Union rules on food labelling applicable to all foods are laid down in Directive 2000/13/EC of 20 March 2000 on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs and its amending acts. The majority of the provisions laid down in that Directive date back to 1978 and therefore had to be updated in order to ensure greater clarity for stakeholders and take account of new developments in the field of food information. The new EU Regulation 1169/2011 of 25 October 2011 on the provision of food information to consumers shall considerably change existing legislation on food labelling in the years to come.

The general objective of the new regulation is to ensure that the information provided on food labels enables final consumers to make informed choices and to make safe use of food, with particular regard to health, economic, environmental, social and ethical considerations. The review of the new regulation as well as the preparatory impact assessment (European Commission, 2008a) clearly reveal that health and safety issues are, by far, most important and that the possible impact of labelling on the environment, let alone food waste, is not addressed at all. The issues raised by Monier et al. (2010) with respect to food labelling and food waste are not anticipated by the new regulation. It could have included directives on:

- the creation and diffusion of guidance for businesses on how to ensure food label compliance and good practice in using date labels consistently;
- the dissemination of information to the public on the meaning of date labels and on the meaning and importance of storage instructions (Monier et al., 2010).

Monier et al. (2010) conclude that food waste prevention is not yet well-established. In the communication on future steps in bio-waste management in the European Union, it is stated that in the vast majority of Member States, no clear and measurable steps have been taken to increase bio-waste prevention (European Commission, 2010). According to the European Commission (2010) this is partly due to the lack of clear guidance, including measurable quantitative targets, but also largely due to the reluctance to limit consumers' choices. Today, food waste is addressed in the Roadmap to a Resource Efficient Europe (European Commission, 2011b), which builds on a preparatory study on food waste across EU 27 that was executed by Monier et al. (2010). Despite the increase of initiatives

addressing food waste in recent years (most initiatives focus on the prevention of food waste are focusing on awareness raising and information provision), much more remains to be done for triggering simple behaviour changes. However, what is actually lacking is a real reduction target for food waste. The creation of such a food waste prevention target for Member States should trigger a coherent food waste reduction policy targeting consumers, catering services, producers and retailers. The revised Waste Framework Directive 2008/98/EC of 19 November 2008 might provide an opportunity in that respect. That Directive foresees the possibility to set waste prevention and decoupling objectives for 2020 by the end of 2014. (Monier et al., 2010)

In its communication on future steps in bio-waste management, the European Commission (2010) suggests it could provide further support for the widest uptake of best practice with respect to bio-waste prevention in national waste prevention plans. In the meanwhile the Commission commits itself to continue working to assess the appropriateness of setting waste prevention targets at EU level.

A valuable initiative that can potentially reduce food waste in the supply chain is Commission Regulation (EC) No 1221/2008 of 5 December 2008 which reduces the aesthetic requirements for many fruits and vegetables. The Regulation aims to prevent the unnecessary discard of various types of produce that are still perfectly edible, but aesthetically inferior. This means that consumers will be offered the choice to buy fruits and vegetables with slight abnormalities. If these produce are offered for sale at a different price level that might maximise their use, thereby reducing the production of food waste. (Monier et al., 2010).

As it is impossible to prevent all food waste, food waste could be used as animal feed. The Green paper on the management of bio-waste in the European Union (European Commission, 2008d), which aims to improve the management of bio-waste, however, does not touch upon this option. The Green paper only addresses the separate collection, land filling (final disposal), incineration (final disposal with energy recovery), composting (recycling) and anaerobic digestion (energy recovery) of bio-waste, which all are considered as inferior options – at least from an environmental point of view – to the use of food waste for animal feed.

In response to the BSE crisis, Regulation (EC) No 999/2001, and its amending acts, prohibits the feeding of animal protein and animal feed containing such protein to farmed animals. Only certain animal proteins which are considered to be safe (such as fishmeal) can be used, and even then, it is under very strict conditions (European Commission, 2007b). This has resulted in increased imports of protein feed, and especially soybeans from South America. Possibly the ban could be reviewed and relaxed in order allow a more efficient use of slaughter offal.

6.2.3. HEALTH POLICY AND DIET

The amount of calories, fats and proteins in the average EU27 diet is well above the recommended values (WHO et al., 2007), which indicates the unhealthy nature of our consumption pattern. Besides, as has been illustrated in the Task 2 report, also the composition of our diets matters. The overconsumption of animal derived protein is particularly problematic (in 2007 the EU27 average per capita protein intake was about 70% higher than the WHO recommended amount) (European Commission, 2011d). Due to an inherently inefficient conversion (on average, 6 kg plant protein is required to yield 1 kg meat protein), a meat based diet has the highest impact on land use (Pimentel et al., 2003; Smil, 2000). Accordingly, direct human consumption of plant proteins is likely to have a lower impact on deforestation than meat. Moreover, the overconsumption of meat has been associated with various health problems and obesity (IVM, 2012).

Given the health implications of the average EU27 diet, reducing the deforestation content of our consumption might have synergies with health policy.

In May 2007, the Commission established a coherent and comprehensive Community Strategy to address the issues of overweight and obesity, by adopting the White Paper 'A Strategy on Nutrition, Overweight, and Obesity-related health issues' (European Commission, 2007a) focussing on action that can be taken at local, regional, national and European levels to reduce the risks associated with poor nutrition and limited physical exercise.

The EU Strategy on Nutrition, Overweight, and Obesity-related health issues does not make any reference to meat consumption. The same holds for the initiatives undertaken by the partners of the EU Platform for Action on 'Diet, Physical Activity and Health' on which the Strategy builds.

6.2.4. ENABLING WELL-INFORMED CONSUMER CHOICES

Reducing consumption, and *ceteris paribus* the demand for land and the pressure on forests, is important, but one should also look at 'what' we actually consume. Making progress in that respect requires that consumers gain awareness as well as that they are offered the right information so they can make informed choices. What people need, is information on the deforestation footprint of the products they are buying and/or the ingredients and origin of the product. The current situation is not ideal because:

- there is a proliferation of non-governmental and national sustainability certification schemes;
- certification schemes barely account for the deforestation impact;
- product labels do not always mention all ingredients or remain very general; and
- the place of origin indicated on product labels might be misleading.

The issue of food waste illustrates that both the labelling of products and consumer awareness matters. The question is thus not only whether the average EU27 consumer is willing to change his or her consumption behaviour for environmental reasons and more specifically the impact of consumption on deforestation. Consumers also need to receive the right information at the right time. In addition, they should understand the information that is offered to them. Consumers thus need to be able to make well-informed consumer choices. At the moment, the provision of information to consumers on the deforestation footprint of products is quasi nonexistent. There are a number of reasons why the current situation is problematic.

Firstly, there are a host of certification schemes that provide information on the environmental performance and/or footprint of products, but the impact on deforestation is barely taken into consideration. This is for instance the case for the EU Ecolabel scheme. Besides, the current proliferation of certification schemes, given a large number of non-governmental or national sustainability assurance schemes, might even add to the general disinformation. As a consequence, consumers simply do not know which criteria these schemes are looking at.

Secondly, products like soybean oil and palm oil, which are key commodities associated to deforestation, are used in thousands of products and are embedded in the day-to-day operations of countless companies (Forest Footprint Disclosure, 2011). The problem is that the product labels do not always mention all ingredients, remain general (e.g. 'vegetable oils') or, even worse, explicitly mention 'no palm oil' while palm oil has been used. Similarly, the provenance of beef produced on deforested land can be concealed within ready meals. Current labelling requirements in the EU for meat other than beef do not include its place of origin, allowing imports packaged in Europe to be labelled as European (Forest Footprint Disclosure, 2011).

The new EU Regulation 1169/2011 on the provision of food information to consumers considerably changes existing legislation on the labelling of the origin or place of provenance of food. From 13 December 2014 the indication of the country of origin or place of provenance shall be mandatory:

- where failure to indicate this might mislead the consumer as to the true country of origin or place of provenance of the food;
- for swine, sheep, goat and poultry meat (the labelling of beef and beef products is already regulated by Regulation N° 1760/2000);
- for the primary ingredient of a food (commonly a primary ingredient is defined as representing more than 50% of that food) when its origin or place of provenance is different from the food itself.
-
- The exact provisions of the latter two bullet points, however, still need to be defined. The Commission will also assess the necessity / feasibility of the mandatory labelling of the country of origin or place of provenance for:
 - types of meat other than beef, swine, sheep, goat and poultry;
 - milk and milk used as an ingredient in dairy products;
 - unprocessed foods;
 - single ingredient products;
 - ingredients that represent more than 50% of a food;
 - meat used as an ingredient.

Thirdly, the origin of a product marked on product labels might be misleading. The statement 'produced in the EU' does not mean that there are no products used that are imported and might be associated to deforestation.

Fourthly, what is not addressed by current labelling practice and regulations is the provision of information about the feed used fattening the animals that we consume. This is a major drawback as the EU imports of soybean cake and soybeans from Brazil, Argentina and Paraguay, which, according to the results of the task 2 report, is the most important source of deforestation associated with EU consumption, are to an important extent used as feed for our livestock.

To conclude, in order to be meaningful the information that is offered to consumers on the sustainability of goods and services requires that consumers are both sufficiently aware of the issues at stake and ready to take action and alter their habits. The provision of information on the origin of products is certainly interesting, but might still be less tangible to most people than a sustainability label as people e.g. still need to know that meat from Brazil might be associated with deforestation. Information on the origin of products or its ingredients is only an indicator, but does not establish a one on one relationship with (un)sustainability.

Enabling consumers to make well-informed choices is, however, not sufficient. As stated in the Communication on the Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan of the European Commission (2008b), the key challenge for moving towards more sustainable patterns of consumption and production is to create a kind of virtuous circle, linking demand and supply. Concretely, it consists of improving the overall environmental performance of products throughout their life-cycle, promoting and stimulating the demand for better products and production technologies and helping consumers to make better choices through a more coherent and simplified labelling. (European Commission, 2008b)

6.2.5. GREEN PUBLIC PROCUREMENT

Green public procurement (European Commission, 2008e) is seen as an effective instrument in promoting environmentally-friendly products and services and in encouraging eco-innovation, thus contributing to sustainable development. The communication by the European Commission (2008e) aims to provide guidance on how to reduce the environmental impact caused by public sector consumption and how to use green public procurement to stimulate innovation in environmental technologies, products and services. More specifically, the communication proposes instruments which should enable the main obstacles to increased uptake of green public procurement to be removed.

With respect to combating deforestation, one should make sure that specific provisions are drafted for avoiding the purchase of products that might be associated with deforestation. The requirements might need to be (made) more stringent for / specifically address products with a significant deforestation impact.

To date, member states are greening their procurement practice and fostering the uptake of sustainable products and services. The criteria that products and services have to meet, however, vary from country to country. In addition, the potential of green public procurement has only been marginally exploited. (European Commission, 2008b).

6.3. CONCLUSION

Sustainable consumption and production policy is mainly about creating the conditions for enabling and stimulating people to consume more sustainably. The key challenge for moving towards more sustainable patterns of consumption and production is to create a kind of virtuous circle, linking demand and supply. Concretely, it consists of improving the overall environmental performance of products throughout their life-cycle, promoting and stimulating the demand for better products and production technologies and helping consumers to make better choices through a more coherent and simplified labelling.

Taking a look at the supply chain in the food sector, which is the sector most associated with deforestation, one sees that food suitable for human consumption is wasted throughout the chain, from initial agricultural production over processors, retailers and caterers down to final consumption. Particularly the interactions between the different links in the supply chain are critical with respect to the generation / minimization of food waste.

The inefficiencies in the chain relate to inaccuracies in stock management, packaging problems, marketing strategies, labelling policies, misinterpretation of or confusion over 'best-before-dates', consumer behaviour, lack of consumer knowledge and awareness on efficient food use, consumer preferences and attitudes, portion sizes, etc. Improving the labelling of foodstuffs and awareness raising are important strategies for the reduction of food waste. However, what is actually lacking is a real reduction target for food waste. The creation of a food waste prevention target for Member States should trigger a coherent food waste reduction policy targeting consumers, catering services, producers and retailers.

Reductions in the wastage of food would allow the EU to satisfy citizens' desires for food with significantly fewer inputs. A complementary strategy for reducing the deforestation footprint of EU consumption of food would be to stimulate people to consume differently (e.g. substituting meat for vegetables) and/or less.

At a more general level, the Roadmap to a Resource Efficient Europe contains a host of very valuable initiatives that aim addressing both the demand and the supply side. Furthermore, the Roadmap also focuses on removing the barriers that remain unaddressed by sectoral policies like the phasing out of inefficient subsidies and getting the prices right.

At the supply side critical action relates to boosting the material resource efficiency of products and turning waste and by-products into a resource. Demand side initiatives, on the other hand, should take advantage of the untapped potential of green public procurement and work on a coherent and simplified labelling of products' (deforestation) footprint.

6.4. LITERATURE

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CHAPTER 7 TRADE

7.1. INTRODUCTION

The European Commission considers trade as an engine for growth, which is the over-riding aim of European economic policy. Within the framework of the Europe 2020 strategy, EU trade policy seeks to stimulate growth, create jobs and safeguard economic welfare by increasing the opportunity of our companies to trade with the rest of the world. To this end EU trade policy helps to open new markets for European exports through trade agreements. The supposition is that open economies trend to grow faster than closed economies. Trade is also expected to foster efficiency and innovation, which are factors driving growth, and gives EU consumers access to a wider variety of goods at lower prices. As open markets can e.g. lead to job losses in under-performing sectors the development of an open trade policy should, however, be accompanied by social policies. With respect to the environment the Communication from the Commission on 'Trade, Growth and World Affairs. Trade Policy as a core component of the EU's 2020 strategy' states that (European Commission, 2010a):

"Trade policy should continue to support and promote green growth around the globe in other areas, such as energy, resource efficiency and biodiversity protection. We will also continue to give particular attention to the implementation of sustainable development chapters in our trade agreements, and to close cooperation with civil society."

International trade allows a region to consume more than it actually produces, thereby shifting the environmental burden (e.g. deforestation) to distant places. This is the result of the difficulty to ensure that the prices of the goods and services produced in one country or region reflect the entire environmental cost of production. This situation can distort a region's real comparative advantages, stimulating overconsumption of the environmental resources and thereby reducing overall welfare. Trade policy, however, can change the conditions on which commodities and products that are associated with deforestation can enter the EU market. These conditions then impact on the production of products and commodities. Trade policy therefore satisfies criteria (1a), (1b), (2) and (3).

The fact that international trade allows a region to consume more than it actually produces relates to the fact that international trade allows a country or region to specialise in the production of these goods that it can produce most efficiently, i.e. the goods for which it has a comparative advantage. Specialisation increases production which then expands the consumption possibilities of countries or regions that trade. International trade thus promotes efficiency as well as the introduction of new technologies and management practices. Comparative advantages exist when there are regional differences in the relative production costs of different goods and services. With international trade each country or region specialises in the production of those goods for which it has a comparative cost advantage. An important factor explaining the differences in comparative costs are the differences in the relative availability of factors of production (land, people, capital) between countries or regions. Each country or region then specialises in those goods and services which require the intensive use of the production factors they are abundantly endowed with. (Abraham, 1997)

When markets are opened to trade local and global prices will be brought closer together. Both input and output prices can be affected. There is agreement that deforestation is affected by agricultural output prices. If in a country or region local agricultural and/or timber prices are lower than in the rest of the world one would expect that trade will increase output prices and consequently extraction rates in that country or region. Morton et al. (2006) found a direct correlation between the soy bean price and deforestation rates in Brazil. Also in Brazil, McAlpine et al. (2009) found a good correlation between beef prices and deforestation rates. This suggests that price increases on the international market could increase deforestation rates. More ambiguous is the impact of changes in input prices such as wages, rents and fertilizers on deforestation. According to Robalino et al. (2009) countries that already specialized in the production of agricultural goods for export markets ((countries that have a comparative advantage for producing agricultural commodities, requiring land as a key input) are potentially more affected by deforestation when trade increases. Even though this would imply in principle that trade has a detrimental impact on deforestation, there are several nuances to the argument. Trade also has the potential to prevent or reverse environmental damage e.g. via the transfer of environmentally-friendly technologies. (Robalino et al., 2009) Trade policy is necessary in order to make trade possible between countries with different policies, legislations, cultures, etc. Trade policy can (could) also take care of some of the adverse, welfare decreasing, effects of increasing trade. One of the (theoretically well-known) adjustments that must be addressed in reality is the over-consumption of outputs as well as inputs that are not correctly internalized into the price of the goods that are traded. Environment related services in general, and the use of land or forests in developing countries more specifically, are often not sufficiently valued in internationally traded goods. The under-valuation of public goods (as the environment so also forests) is a difficult issue in general, as well as in the specific area of trade.

In this chapter, the focus is on the phases in the process of trade negotiations and liberalizations where deforestation can / could be addressed. It is examined how / if EU trade policy integrates environmental issues, and more specifically deforestation. First, we will shed a light on the process of trade liberalization and the general possibilities to include environmental provisions in FTAs. Also, the integration of sustainability considerations in EU trade agreements by means of ex ante Sustainable Impact Assessments (SIA) is covered. Secondly, we concentrate on bilateral agreements with countries and regions that are more specifically vulnerable to deforestation and question the low or zero tariffs for exporting some deforestation-causing products to the EU.

7.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

7.2.1. FTAs AND ENVIRONMENTAL PROVISIONS

The process of international trade liberalisation has been going on for several decades. At a global level, negotiations take place under the umbrella of the World Trade Organisation (WTO). A majority of nations are now members of this forum. Agreements within the WTO proceed in a series of 'rounds'. The current 'Doha' or 'development' round was launched in 2001. The Doha declaration pledged to enable developing countries to 'secure a share in the growth of world trade commensurate with the needs of their economic development'. In the meanwhile the EU is also negotiating bilateral free trade agreements (FTAs) with different countries as well as Economic Partnership Agreements (EPAs) with countries from Africa, Caribbean and Pacific (ACP) regions. (European Commission, 2012)

Under the WTO framework there is no specific agreement dealing with the environment. Several WTO agreements nevertheless confirm governments' right to protect the environment, provided certain conditions are met, and a number of them include provisions dealing with environmental

concerns. The objectives of sustainable development and environmental protection are included in the preamble to the agreement establishing the WTO. The EU is taking a leading role in multilateral discussions on these issues, in particular in the WTO Committee on Trade and Environment. At the launch of the Doha trade round, the EU succeeded in having sustainable development reflected upon in the negotiations. The substance of the Doha Agenda on trade and environment (paragraphs 31-33 of the 2001 Doha Ministerial Declaration) covers, amongst others, negotiations on the relationship between existing WTO rules and specific trade obligations set out in multilateral environmental agreements. Under the Doha Development Agenda, the regular Trade and Environment Committee has been asked to focus on the effects of environmental measures on market access and labelling for environmental purposes. The work of the Committee, however, is separate from the new negotiations on trade and environment. (WTO, 2012)

Alongside the global-level negotiations, WTO members are allowed, under certain conditions, to further open their markets on a bilateral or regional basis and thus go beyond what is currently possible multilaterally. The EU has successfully concluded a number of important trade agreements with countries and regions around the world and is in the process of negotiating agreements with many more. The EU is conducting FTA negotiations with Mercosur, encompassing countries like Brazil, Argentina and Paraguay to which most of the deforestation embodied in the EU27 consumption can be attributed. Also important in the context of this study are the FTA negotiations with ASEAN countries. In December 2009 the EU Member States gave the green light for the Commission to pursue negotiations towards FTAs with individual ASEAN countries. At the same time, the EU is not losing sight of the ultimate goal of achieving an agreement within a regional framework (European Commission, 2012).

→ **Environmental provisions**

Today, most trade agreements that are negotiated include some type of environmental provisions. The scope and depth of these provisions varies significantly. A study by the OECD (2007) concludes that the European Union, together with Canada, New Zealand and the US, have included the most comprehensive environmental provisions in trade agreements. These provisions include: environmental cooperation; environmental standards and enforcement of environmental laws; procedural guarantees, enforcement and dispute settlement mechanisms; parties' right to adopt or maintain environmental regulations; and mechanisms for public participation on environmental matters. As far as the EU is concerned, it is systematically including sustainable development provisions, covering both environmental and social issues, in its latest generation of FTAs.

In general, trade agreements dealing with environmental issues often do so in the form of commitments by Parties to cooperate on environmental matters. The scope and depth of these commitments vary, and range from cooperation in one specific technology area to fully-fledged cooperation programs. Environmental cooperation provisions may have a range of objectives. These may include, inter alia, enhancing the protection of the environment in the territories of the Parties; mainstreaming environmental sustainability into all aspects of cooperation and interaction between the Parties; promoting development of and compliance with environmental laws, regulations, procedures, policies, and practices; strengthening the scientific and technical human and institutional capacity for environmental management; promoting rational management of natural resources and the adoption of environmentally friendly policies, production processes, and services; and increasing transparency and public participation in environment-related discussions and processes. (OECD, 2007)

A OECD workshop on the monitoring, implementation and the assessment of impacts concluded that the proactive engagement of stakeholders is critical in the development of effective programs for

environmental cooperation, covering NGOs, the private sector (on issues such as Corporate Social Responsibility and Environmental Management Systems), and all relevant government departments (to promote policy coherence). (George, 2011)

The new generation of EU FTAs, of which the FTA between the EU and the Republic of Korea is the first, have more formal arrangements for implementing their environmental provisions. The FTAs between the EU and Chile and CARIFORUM did not establish a body dealing specifically with environmental issues. The FTA between the EU and the Republic of Korea, however, did foresee the establishment of a specific institutional mechanism for the implementation of its trade and sustainable development chapter. (George et al., 2011)

The European Union is incorporating environmental provisions into the EPAs it is negotiating with ACP countries and they reflect varying degrees of substance and ambition ranging from mere exception clauses to a full chapter on environmental cooperation, levels of protection and right to regulate, regional integration and use of international environmental standards and consultation and monitoring mechanisms. EPAs thus go beyond simply offering market access to the exports from countries belonging to specific ACP regions as they e.g. also provide cooperation on trade related issues like environmental standards. The FTA between the EU and CARIFORUM even stipulates that: “in the absence of relevant environmental standards in national or regional legislation, they shall seek to adopt and implement the relevant international standards, guidelines or recommendations, where practical and appropriate”.

The new generation of EU FTAs include comprehensive trade and sustainable development chapters. Such chapters have been included in FTAs with the Republic of Korea, Peru and Columbia as well as Central America and are under negotiations with a number of other countries. The environmental provisions in those chapters, among other things, recognise the right of the parties to establish their own levels of environmental protection while seeking to ensure that the relevant laws and policies provide for and encourage high levels of environmental protection, consistent with the multilateral environmental agreements to which they are party. Also, the parties commit themselves to not fail to effectively enforce their environmental laws and to not weaken or reduce the environmental protections afforded in their laws to encourage trade or attract investments. In this context, it is important to mention the provision on promoting trade in environmental goods and services as well as in climate friendly products and technologies, the use of sustainability assurance schemes, such as fair and ethical trade, and corporate social responsibility practices. The trade agreements with Central America and with Colombia and Peru also include dedicated provisions on trade in forest products, covering the promotion of trade in legal and sustainable forest products. The implementation of these environmental provisions is monitored by a joint body with a strong involvement of civil society.

→ SIAs

Since 1999, the EU's major multilateral, regional or bilateral trade negotiations are examined for their sustainability effects. Potential economic, social and environmental implications are assessed in a Sustainability Impact Assessment (SIA).

A SIA is an ex-ante assessment that is carried out during the trade negotiations. It should help to integrate sustainability considerations into trade agreements. Trade SIAs are independent studies conducted by external consultants, on the basis of which the Commission sets out its own views on the identified impacts and on the policy measures proposed to address them. A particular feature of EU's SIA practice is that SIAs are carried out in cooperation with the civil society in partner countries and look at impacts for both the EU and the partners.

In addition, in its communication on 'Trade, Growth and World Affairs: trade policy as a core component of the EU's 2020 strategy' the Commission commits to carry out impact assessments on all new trade initiatives with a potentially significant economic, social or environmental impact on the European Union and its trade partners, including developing countries. Furthermore, it also announces that, to help monitor the impacts of existing trade agreements, the Commission will carry out ex post evaluations on a more systematic basis. (European Commission, 2010a)

Since 1999 the EU has e.g. conducted trade SIAs for the EU - Mercosur, EU - ASEAN and Doha trade negotiations. The SIA that was made for the EU - Mercosur free trade negotiations (see the outcome of the EU - Mercosur free trade negotiations' SIA in Annex 2) shows that environmental concerns are identified. In Mercosur, full trade liberalisation in the agriculture and the forest sector could result in added pressure and potentially significant adverse impacts on natural resources, forest coverage and biodiversity, which would require adequate measures. The European Commission wishes to ensure that the other party to an FTA assumes its responsibility in addressing the likely increased pressure and potentially significant adverse impacts on natural resources (like forests)..

The ex ante assessment of environmental impacts of trade agreements could gain from reinforcing the method and tools for assessing the impacts on deforestation. There might also be room for a better translation of the deforestation related insights and recommendations from SIAs in the provisions of FTAs and/or accompanying policy measures.

7.2.2. TARIFFS AND DEFORESTATION

Since 1971, the EU implemented a Generalized System of Preferences (GSP) under which it granted autonomous trade preferences to all developing countries. The EU's GSP scheme offers lower tariffs for imports from developing countries into the EU market. Traditionally, it has also been admitted that the group of least developed countries (LDCs) should receive a more favourable treatment than other developing countries. Gradually, market access for products from these countries has been fully liberalized. In February 2001, the Council adopted the so-called Everything But Arms regulation (EBA), granting duty free and quota free access to imports of all products (with the exception of bananas, sugar and rice for a limited period) from LDCs, except arms and ammunitions. (European Commission, 2012)

More recently, non LDC countries from Africa, Caribbean and Pacific (ACP) regions which have signed EPAs also benefit from duty free and quota free access for all their products to the EU. Although some of the EU's ACP trading partners already have duty free and quota free access to the EU market under the EBA scheme, the EPAs go beyond simply offering market access as they e.g. also provide cooperation on trade related issues like environmental standards. (European Commission, 2012)

From 2014 onwards, the EU's new GSP will concentrate GSP preferences on fewer countries (European Commission, 2011). Whilst the generous product coverage and preference margins would remain unchanged, a number of countries would no longer benefit from the scheme: higher and upper middle income countries and countries that have preferential access to the EU. Under the EU's special incentive-based arrangement GSP+, vulnerable countries that have ratified and implemented core international conventions in the areas of good governance and sustainable development, including basic human rights, labour rights and the environment, receive additional tariff rate cuts when they export to the EU. The revised GSP scheme aims at, amongst others, making the GSP+ regime more attractive. It will notably relax the economic entry criteria to allow more countries to apply. At the same time, the entry criteria linked to conventions will be strengthened. (European Commission, 2012)

Below, we give an overview of the tariffs that apply to the most important 'commodity - country of origin' pairs for imported deforestation by the EU27. The overview shows that, with the exception of the import of soy bean cake and beef from Brazil, these commodities enter the EU at relatively low or zero tariff rates.

The applicable duty rate for importing soybeans into the EU is 0 %. For soybean cake import duty rates range from 0% to 4,5%. The tariff applicable to the import of soybean cake from Brazil is 4,5%. The tariff for importing frozen meat of bovine animals (carcasses and half carcasses) into the EU ranges from 0% to 12.80 % + 176.80 EUR / 100 kg. The tariff applied to imports of frozen meat of bovine animals (carcasses and half carcasses) from Brazil equals the highest duty rate of 12.80 % + 176.80 EUR / 100 kg. The applicable duty rate for importing cocoa beans into the EU is 0 %. The tariff for importing palm oil for the manufacture of cosmetics, washing products or pharmaceutical products into the EU ranges from 0 % to 5,1 %. The tariff applied to imports of palm oil for the manufacture of cosmetics, washing products or pharmaceutical products from Indonesia equals the lowest duty rate of 0 %. (TARIC, 2012 and Tariff Analysis Online, 2012)

Agricultural commodities that are associated with deforestation can enter the EU market at low or zero tariff rates. This could result in over-consumption of these commodities and possibly more deforestation. Should the EU therefore not impose sustainability criteria to the commodities consumed within the EU and prevent or discourage the import of commodities that are associated with deforestation? This has to be assessed in terms of its feasibility and effectiveness, as well as against the background of WTO rules.

WTO rules provide scope for its members to pursue environmental objectives and adopt trade-related measures aimed at protecting the environment. For example, Article XX on General Exceptions of the General Agreement on Tariffs and Trade (GATT) lays out a number of specific instances in which members may be exempted from GATT rules. The idea behind this provision is, among other things, to ensure that environmental measures are not applied arbitrarily nor as hidden protectionism. With respect to deforestation the exception included in paragraph (g) of Article XX is particularly relevant. According to this paragraph, WTO members may adopt policy measures that are inconsistent with GATT rules, but are necessary with respect to the conservation of exhaustible natural resources. For a GATT inconsistent environmental measure to be justified under Article XX, a member must meet two cumulative requirements. First, the specific measure must meet the exception included in paragraph (g) of Article XX, which reads as follows: *“relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption”*, and, then, the measure should also meet the requirements in the introductory paragraph of Article XX, which read as follows: *“measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail”*, and measures are not applied as *“a disguised restriction on international trade”*. (WTO, 2012)

7.3. CONCLUSION

Most bilateral EU FTAs as well as the EPAs with the ACP countries, include some type of environmental provisions. The new generation of EU FTAs include comprehensive trade and sustainable development chapters, which, among other things, recognise the right of parties to set the level of environmental protection while respecting international commitments; reaffirm the effective implementation of multilateral environmental agreements; and provide for commitments not to lower the standards or fail to enforce its legislation to attract trade and investments.

SIAs that are carried out in cooperation with the civil society in partner countries look at impacts for both the EU and the partners. However, it remains a challenge to translate environmental concerns identified by SIAs into effective environmental provisions in FTAs. Another question is how to reinforce assessing the impacts on deforestation in SIAs.

Agricultural commodities that are associated with deforestation can enter the EU market at low or zero tariff rates. This could result in over-consumption and more deforestation. Of course, a global evaluation of this issue requires to take into account dimensions that go beyond the scope of this study. Anyhow, from a partial point of view, focusing exclusively on deforestation, the system of free access could have detrimental consequences.

7.4. LITERATURE

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CHAPTER 8 FOREIGN INVESTMENT

8.1. INTRODUCTION

The objective of the relevant European policies in this respect is to make sure that European investors in third countries are able to benefit from a favourable and stable investment environment. This is especially the case in those countries where the legal, political or economic conditions are insufficient to guarantee the certainty of investments. The fact whether one should or should not impose certain obligations (e.g. with respect to the management of possible adverse environmental impacts of foreign investments) on investors is the subject of debate. (European Commission, 2010)

Policies addressing foreign investment potentially affect the conditions on which foreign investors (are able to) invest and operate abroad. As investors provide capital, which is, together with land and labour, a key factor of production, they have the power to influence how businesses operate. Concretely, investors can discharge their power to reduce the deforestation embodied in the primary commodities and products produced by the businesses it invests in / might invest in. Possibly, also the land use associated with the production of commodities and products could be targeted by foreign investment policies. Foreign investment policy therefore satisfies criteria (1a), (1b) and (2).

Through foreign direct investment (FDI), companies build the global supply chains that are part of the modern international economy.⁸ As the world's largest source of FDI outside the EU, European entities have an impact on the way global supply chains are organised. Consequently, they can play an important role in minimising the negative environmental impacts of their investments and operations (European Commission, 2010). While foreign direct investment is important, the role of institutional investors and intermediaries in (co-)financing investments is crucial too. The investment of capital provides them with a stake in the undertaking in which there has been invested. The way in which investors discharge their responsibilities and powers (as the providers of capital and the owners of companies) has important consequences for society as they are in the position to influence corporate behaviour. (Sullivan et al., 2012)

As the expansion of the biofuel and feedstock production in forest-rich countries in Asia, Africa and Latin America requires important investments, the involvement of institutional investors as well as commercial and development banks is needed. A great number of the investors involved are foreign, among which also European, entities. (van Gelder et al., 2011)

After a brief introduction of the different investors and intermediaries, this section will shed a light on the relevant international investment regulations as well as on the use of instruments for governing the environmental impacts of investments. When presenting the international regulation

⁸ Foreign direct investment (FDI) is generally considered to include any foreign investment which serves to establish lasting and direct links with the undertaking to which capital is made available in order to carry out an economic activity. When investments take the form of a shareholding this objective presupposes that the shares enable the shareholder to participate effectively in the management of that company or in its control. This contrasts with foreign investments where there is no intention to influence the management and control of an undertaking. Such investments, which are often of a more short-term and sometimes speculative nature, are commonly referred to as portfolio investments. (European Commission, 2010f)

and governance instruments, some critical insights with respect to the environment (in general) and deforestation (in particular) are highlighted.

8.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

8.2.1. TYPES OF INVESTORS AND INTERMEDIARIES

The group of investors is diverse and can be divided into direct investors, portfolio investors and entities facilitating investments. Direct investors are private entrepreneurs as well as state-owned companies and multilateral institutions which invest capital to establish, expand or (partly) acquire an undertaking. Portfolio or institutional investors are entities that pool or manage financial resources with the aim to invest them in equity, bonds or other investment projects. This category includes pension funds, insurance companies, asset managers and sovereign wealth funds (Sullivan et al., 2012). Entities facilitating investments provide various services to direct investors. These entities are governments providing development aid, (soft) loans, technical assistance or investment incentives, development banks and multilateral institutions providing loans and technical assistance, commercial banks providing loans, the provision of export credit loans and guaranties by export credit agencies (ECAs) and the activities by rating agencies. (van Gelder et al., 2011)

While investors can influence the actions of the companies they choose to invest in, facilitators can screen investment proposals making use of responsible investment criteria. Direct investors are involved in both the strategic and operational activities and generally have a direct influence on corporate behaviour. The influence of institutional or portfolio investors is more indirect and is based on a range of formal and informal rights and powers that can influence corporate behaviour. (Sullivan et al., 2012)

8.2.2. INTERNATIONAL AND BILATERAL INVESTMENT AGREEMENTS

The international investment legal regime is largely developed incrementally, through myriad bilateral agreements and investment contracts (Wouters et al., 2009). Since the 1990s Bilateral Investment Treaties (BITs), pioneered by the European countries, have emerged as the dominant type of international investment agreement (IIA). Up to the entry into force of the Lisbon Treaty on 1 December 2009 BITs were concluded by individual Member States and covered the protection of investors from these Member States investing abroad in accordance with host state laws in a third country and of their investments. In parallel, the EU has been negotiating both through bilateral (FTAs) and multilateral agreements (GATS/WTO) market access commitments for EU investors in third countries operating in both services and non-services sectors. The scope of multilateral agreements concerning investment, however, is typically limited in terms of substantial coverage or restricted to procedural issues. In spite of several attempts, there currently does not exist a comprehensive, global agreement on all substantive components of FDI. (De Schutter et al., 2009)

Since the entry into force of the Lisbon Treaty, investment became part of the Common Commercial Policy which is an area of exclusive EU competence. A new European international investment policy should enable access for European investors to third-country markets to be facilitated. The situation in which individual Member States were responsible for concluding BITs created unequal conditions of competition between European investors. That is why the EU will now work to obtain investment protection through trade negotiations. In the short term, the prospects for realising the integration of investment into the common EU commercial policy are present in ongoing trade negotiations like the free trade agreement negotiations with India, Canada, Singapore and Mercosur. (European Commission, 2010)

In general, BITs establish inter-state reciprocal rules for the treatment of investors and their investments. According to De Schutter et al. (2009) BITs only assign obligations to the host state and not to the investor or the home state. De Schutter et al. (2009, page 165) state this as follows “BITs are, almost without exception, severely imbalanced agreements dedicated nearly exclusively to the promotion and protection of foreign investment, granting far-reaching rights to investors without matching these with corresponding social, environmental or other obligations toward the host state”. It, however, has to be noted that these obligations arise out of the domestic law of the host state, which is not altered or interfered with by BITs.

According to Wouters et al. (2009) the overwhelming majority of IIAs do not include provisions which seek to monitor the impact of FDI in the host state on issues like respect for the environment. Such issues typically fall outside the scope of BITs and are governed by the national law of the host state and/or relevant international environmental agreements. In its 2008 review of IIAs, however, the UNCTAD concluded that more countries are revising their model BITs to reflect new concerns related to environmental and social issues. Consequently, a growing number of recent agreements tend to ensure a better balance between the rights of foreign investors on the one hand, and respect for legitimate public concerns on the other hand (UNCTAD, 2008). A recent survey by the OECD (Gordon et al., 2011) on the use of references to environmental concerns in a sample of 1623 IIAs concludes that the inclusion of environmental language is becoming more common. The same study finds that language referring to environmental concerns is rare in BITs but common in non-BIT IIAs like FTAs with an investment chapter. Especially EU Member States, among which Germany, France, the UK and Spain, barely have any treaty with specifically dedicated environmental language, but provide that protected investments are those that are made in accordance with the law of the host State. EU FTAs, which cover a broader range of trade issues, do include a dedicated chapter on sustainable development, also covering environmental matters. As the survey by the OECD restricts itself to a statistical analysis of the use of environmental language in IIAs, Gordon et al. (2011) state that their analysis does not reveal whether the use of environmental language actually brings benefits for reconciling openness to foreign investment and protection of environmental concerns.

Today, the key question is whether the EU, which now has the sole competence of concluding investment treaties, will attach a higher priority to balancing the environment and the protection of foreign investment. In the communication of the European Commission (2010, page 9) ‘Towards a comprehensive European international investment policy’ there is only one reference to the environment: “Investment agreements should be consistent with the other policies of the Union and its Member States, including policies on the protection of the environment, decent work, health and safety at work, consumer protection, cultural diversity, development policy and competition policy.” The forthcoming EU investment policy might also offer opportunities. The EU is e.g. willing to open up its investment policy to other concerns than just investor protection. For example, in its 2012 EU Strategic Framework and Action Plan on Human Rights and Democracy, the Council specifically states that it will “ensure that EU investment policy takes into account the principles and objectives of the Union’s external action, including on human rights”. As the conclusion of investment arrangements is going to be integrated in comprehensive FTAs the content of the sustainable development chapter included in these FTAs will also be critical in this respect.

8.2.3. USE AND EFFECTIVENESS OF INSTRUMENTS FOR GOVERNING THE ENVIRONMENTAL IMPACTS OF INVESTMENT

→ Responsible investment and related government regulations

The financial sector increasingly addresses environmental, social and governance issues making use of responsible investment instruments (Sullivan et al., 2012). As stated by van Gelder et al. (2011) the

effectiveness of these instruments in leveraging sustainable investments in the feedstock growing and processing sector is dependent on the adoption of these instruments by a significant number of financial institutions as well as on the quality of the responsible investment policies and instruments used.

Van Gelder et al. (2011) assessed the effectiveness of these instruments in the biofuel sector in Asia, Latin America and Africa against a number of criteria. The selected case studies included a great number of foreign, among which European, banks and institutional investors. The forest and agricultural policies of the banks concerned perform not very good with respect to (1) the measurability, reportability and verifiability of the principles and criteria used, (2) the use of principles and criteria that are based on international accepted standards and (3) the availability of mechanisms for internal monitoring and for external compliance. Although many of the institutional investors signed up to the UN backed Principles for Responsible Investment (UNPRI), none of them had developed a responsible investment policy on biofuels and related feed stocks that meets the necessary quality. (van Gelder et al., 2011)

While the use of responsible investment instruments by the private financial sector is relatively undeveloped, the role of government regulations for both stimulating and facilitating the private financial sector to make use of responsible investment instruments is even more immature. Only a few European Member States have taken relevant initiatives. A non exhaustive overview of initiatives is presented here (van Gelder et al., 2011):

- The UK Socially Responsible Investing (SRI) Pensions Disclosure Regulation aims at stimulating UK pension funds to give more attention to sustainability issues. Complementary regulations requiring these pension funds to report on the implementation of their Statement of Investment Principles are, however, still lacking.
- In France and Sweden governments have installed mandatory corporate social responsibility reporting requirements for financial institutions.

At the end of 2011 the European Commission has presented a package of four measures to support entrepreneurship and responsible business. The first measure is the Social Business Initiative which aims to support social economy enterprises (European Commission, 2011a). This initiative is complemented by a Communication on Corporate Social Responsibility (CSR), presenting a renewed strategy for CSR (European Commission, 2011b). The European Commission (2011c and 2011d) has also submitted a proposal to revise the 'Transparency directive' and a proposal to revise the 'Accounting directives'. The objective of those proposals is to improve transparency and promote sustainable business among multinational enterprises and particularly those operating in the forest and mining industries that would have to disclose payments to governments made in countries where they operate.

The renewed EU strategy 2011-14 for CSR expects EU companies to integrate social and environmental concerns into both their operations and core strategy. With respect to investment, the Commission considers to oblige investment funds and financial institutions to inform their clients about any ethical or responsible investment criteria they apply or any standards and codes to which they adhere. Besides, the Commission currently supports investors on how to integrate non-financial information into their investment decisions. The Commission also invites European asset managers and asset owners, and especially pension funds, to sign up to the UN Principles for Responsible Investment and stresses the responsibility of public authorities to promote CSR in the enterprises which they own or in which they invest. (European Commission, 2011b)

→ Environmental conditions tied to public finance

Governments can tie environmental conditions with respect to deforestation to public financing. Despite the fact the EU ties environmental conditions to its imports of feed stocks and biofuels from forest-rich countries, these same conditions do not apply to investments made by governments of EU countries in the foreign feedstock and biofuel sectors. (van Gelder et al., 2011)

Under pressure of an international NGO-campaign the OECD developed a recommendation on common approaches on the environment and officially supported export credits. Although these OECD common approaches are not legally binding, they created a common ground for European ECAs and have by some of them been literally implemented into binding assessment policies. (OECD Working Party on Export Credits and Credit Guarantees, 2007)

Following a proposal from the European Commission (2006) for a Council decision on the application of certain guidelines in the field of officially supported export credits, the European Parliament adopted a legislative resolution which forces ECAs to be more transparent about the environmental and social effects of transactions supported by ECAs. EU Member States will have to report on how environmental risks are taken into account in the officially supported export credit activities of their ECAs.

The 2010 review by the OECD Working Party on Export Credits and Credit Guarantees credits shows that the ECAs environmental review systems of different OECD members continue to vary. Some members even might have little or no experience of dealing with projects with potential adverse environmental impacts. Nonetheless most members seem to have systems in place for reviewing applications for official support that are broadly compliant with the OECD requirements. The differences in systems that still exist are differences with regard to screening applications, reviewing projects for their potential environmental impacts, benchmarking against host and international standards, and making projects' environmental impact information publicly available. (OECD Working Party on Export Credits and Credit Guarantees of ECAs, 2010)

FERN (2008) is more critical and concludes that the lack of binding environmental and transparency standards for ECAs has led to increased illegal logging, corruption and the opening of previously isolated forests. What's more, by aiming for very low-transaction costs, most ECAs have little internal capacity for assessing the environmental or social impacts of the operations they help to finance. (FERN, 2008)

8.3. CONCLUSION

Generally speaking, investors provide the capital which is necessary for a company to operate and develop activities. The investment of capital provides them with a stake in the undertaking in which there has been invested. The way in which investors discharge their responsibilities and powers (as the providers of capital and the owners of companies) has important consequences for society as they are in the position to influence corporate behaviour. (Sullivan et al., 2012)

Bilateral Investment Treaties (BITs), pioneered by the European countries, have emerged as the dominant type of international investment agreement (IIA). Although a growing number of recent agreements tend to ensure a better balance between the rights of foreign investors on the one hand, and respect for legitimate public concerns on the other hand, the majority of IIAs do not include provisions which seek to monitor the impact of FDI in the host state on issues like respect for the environment. Such issues typically fall outside the scope of BITs and are governed by the national law of the host state and/or relevant international environmental agreements. Especially a number of

major EU Member States, among which Germany, France, the UK and Spain, barely have any treaty with specifically dedicated environmental language.

). Since the entry into force of the Lisbon Treaty, investment became part of the Common Commercial Policy which is an area of exclusive EU competence. Today, the key question is whether the EU, which now has the sole competence of concluding investment treaties, will attach a higher priority to balancing the environment and the protection of foreign investment. As the conclusion of investment arrangements is going to be integrated in comprehensive FTAs the content of the sustainable development chapter included in these FTAs will also be critical in this respect.

The financial sector increasingly addresses environmental, social and governance issues making use of responsible investment instruments (Sullivan et al., 2012), but overall the use of these instruments is still relatively underdeveloped. While governments could tie environmental conditions to public finance as well as stimulate and facilitate the private financial sector to make use of responsible investment they hardly do so. (van Gelder et al., 2011)

Depending on the political will, governments might want to make use of various instruments to address the different types of actors dealing with foreign investment: financial incentives to encourage portfolio investors to invest sustainably, mandatory use of environmental or sustainability impact assessments, make protection under BITs or ECA insurance conditional, development of a responsible investment framework, etc.

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CHAPTER 9 DEVELOPMENT COOPERATION

9.1. INTRODUCTION

The achievement of the Millennium Development Goals, among which ensuring environmental sustainability (Goal 7), by 2015 is Europe's first and overriding priority. In this respect the EU seeks to promote sustainable development as a driver for progress. Official development assistance should therefore be employed to act as a catalyst, supporting partner countries to help them create an environment that is friendly to sustainable growth. Among the factors that should be worked at to create such an environment are good governance, a well educated, healthy and creative population and the sustainable use of scarce natural resources. (European Commission, 2010a)

The EU and its Member States are the largest donors of development assistance worldwide. Development cooperation, together with other external policies of the EU like external environment and climate policies, proactively contributes to capacity and institutions building for strengthening and effectively enforcing environmental standards and regulations, thereby also reducing pressures on forests (reducing the deforestation embodied in primary commodities and products). Also, development actions are targeted at supporting efficiency improvements in agriculture (reducing the land use embodied in primary commodities and products at source). Development cooperation therefore satisfies criteria (1a), (1b) and (2) and will be included for more detailed analysis below.

Although most deforestation is associated with commodity imports from countries like Brazil, Argentina and Paraguay it is not these countries that are receiving most development assistance. However, in a globalized world balances may shift rapidly. This means that other countries that currently do not export much deforestation to the EU might start exporting more to the EU. It is important that environmental standards in all countries are strengthened and enforced in order to ensure that shifts in trade flows will not make the EU worse off in terms of imported deforestation. EU development cooperation money is used to build the capacity and establish the policies that provide effective incentives to reduce emissions by limiting deforestation and forest degradation (REDD), in order to make developing countries ready to benefit from the opportunities of future REDD financial mechanisms.

9.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

The sustainable management of environmental resources, and more generally environmental sustainability, is fundamental to poverty alleviation and development. That was acknowledged by the European Commission (2000) who stated in its communication 'Integrating sustainable development into Community cooperation policy' that the environment is a key cross-cutting issue that has to be mainstreamed into development policy. That Communication was followed by Regulation (EC) No 2493/2000, which lays down a procedure for allocating Community economic and technical aid to promote the full integration of the environmental dimension in cooperation projects between the Community and developing countries, and the adoption of the Strategy on Integrating the Environment into EC Economic and Development Cooperation (European Commission, 2001a). The need for mainstreaming the environment as a cross-cutting issue was reaffirmed in the European Consensus on Development (2006). The European Consensus also solicited to support developing

countries in environmental policy making, particularly with respect to increasing their capacity to implement multilateral environmental agreements.

In essence, the integration of the environmental dimension serves two purposes:

- Identify and avoid harmful environmental impacts (which could undermine achieving the other objectives of development cooperation);
- Identify and seize the opportunities for enhancing environmental conditions (Palerm et al., w.d.).

The financing instrument for development cooperation (DCI), established by Regulation (EC) No 1905/2006, replaced a range of geographic and thematic instruments that were created over time. The Regulation provides that Community aid is implemented through geographic and thematic programmes and through the programme of accompanying measures for the ACP Sugar Protocol countries. The thematic programmes, which cover a specific area of activity of interest to a group of partner countries, complement the geographic programmes. Of particular interest for the current analysis is the thematic programme for Environment and Sustainable Management of Natural Resources including Energy (ENRTP). The overall objective of the ENRTP as set out in the DCI Regulation is “to integrate environmental protection requirements and climate change action into the Community’s development and other external policies as well as to help promote the Community’s environmental, climate and energy policies abroad in the common interest of the Community and partner countries and regions”. The ENRTP is the only internationally recognised EU environment cooperation instrument. It is intended to provide seed money that will lead to better integration of environment in other EU funded cooperation programmes. (European Commission, 2010b)

The indicative amount available for the period 2011-2013 is approximately €517 million, a considerable increase on the 404 million initially envisaged. This 28% addition relates to new initiatives for climate change. (European Commission, 2010b)

Relevant activities contained in the new thematic strategy paper and Multi-Annual Indicative Programme 2011-2013 of ENTRIP are European Commission (2010b):

- Reducing emissions from deforestation and forest degradation (REDD), and key implementing tools
At the Bali Conference in December 2007, it was agreed that a future climate deal must contain incentives to reverse the trend of deforestation and a REDD scheme was proposed to support developing countries in this endeavour; since then, negotiations have focused on the development of an appropriate mechanism in support of this objective. The Copenhagen Accord stressed the need for fast-start action to establish and strengthen developing country capacity for REDD. Activities under ENTRIP will focus on establishing enabling legal frameworks, policies and strategies and building capacities of government, civil society and private sector to deliver REDD results. Developing countries need support to build the capacity and establish the policies that provide effective incentives to reduce emissions by limiting deforestation and forest degradation (REDD), thus readying them to benefit from the opportunities of future REDD financial mechanisms. The ENRTP can lay the groundwork by supporting pilot actions that can be scaled up through geographic programmes.
- Biodiversity, forest conservation and desertification
Ensure that developing countries are in a better position to assume their responsibilities as signatories of Multilateral Environmental Agreements (MEAs). Activities will include work on forest conservation and sustainable management.

- Forest Governance and FLEGT
The FLEGT Action Plan sets out to strengthen forest governance in developing countries with the leverage and incentives offered by the EU market. Central to this Action Plan are voluntary Partnership Agreements (VPAs) between the EU and timber-producing developing countries which aim to improve governance and guarantee that the wood imported into the EU is from legal sources. The ENRTP will support activities which underpin the development and implementation of VPAs and forest governance reforms, such as policy and legal analysis, support to enable civil society and the private sector to develop, implement and monitor the VPAs, support to design, test and pilot innovative approaches to strengthening governance (including through more easily accessible biodiversity and use information in the public domain) in particular on improved transparency and accountability, impact monitoring, and social safeguards. Support will also be provided for activities which serve to create greater demand for verified legal timber, such as innovative approaches to increase awareness, demand, capacity in finance and banking sectors, with EU importers and private sector organisations, and concerned civil society.
- Support for mainstreaming and promoting governance and transparency for natural resource management, including water
Methodologies and actions to improve mainstreaming and to promote governance and transparency for natural resources relevant to developing countries are further developed, tested and rolled out.

The ENRTP plays an important role in promoting policy coherence for development. It is a key tool both for testing approaches and for pilot actions that can be scaled up under geographical programmes. In this context it is worth noting that the European Parliament finds the ENRTP a very useful but under-funded instrument.

Various tools designed to facilitate the integration of environmental issues into development cooperation exist. The Strategy on Integrating the Environment into EC Economic and Development Cooperation called for the use of both Strategic Environmental Assessment (SEA) and Country Environmental Profiles (CEP) to facilitate the integration of the environment into the preparation of programmes, poverty reduction strategy papers and comprehensive development frameworks (European Commission, 2001a; Palerm et al., w.d.). Regulation (EC) No 1905/2006 stipulates that appropriate environmental screening shall be undertaken at project level including Environmental Impact Assessment (EIA) for environmentally sensitive projects, in particular for major new infrastructure, and, where relevant, SEAs shall be used in the preparation of sectoral programmes. For example, an investment in an infrastructure project may open up a forest and trigger the unsustainable exploitation of natural resources. The role of an EIA is to proactively identify this kind of infrastructure projects and prevent them from being financed unless appropriate mitigation measures will be taken. (European Commission, 2009)

In order to realise these commitments, the European Commission provides a handbook (EuropeAid, 2009) with guidelines for undertaking the obligatory integration of environmental aspects in policies and programmes. That handbook is intended to facilitate the implementation of this obligation, by providing those in charge of planning and delivering external aid with a coherent operational framework, and a set of tools to be applied in the different phases of the cycle of operations and in relation to the three main aid delivery methods (sector policy support programmes, general budget support and project support) (EuropeAid, 2009). Furthermore the Commission also participated actively in drafting the OECD DAC Good Practice Guidance 'Applying Strategic Environmental Assessment for Development Co-operation' (OECD DAC, 2006). The OECD initiative should be seen in

the context of the Paris Declaration on aid effectiveness, which spurred actors to harmonise efforts and develop and apply common approaches for SEA at the sector and national levels.

The strategies and tools outlined above have links with and are complementary to other initiatives like the European Union Strategy for Sustainable Development (renewed in 2006), the EU action plan on climate change and development (European Commission, 2003), the Commission Regulation on Forest Law Enforcement and Trade (FLEGT), the Communication from the European Commission (2005) on Policy Coherence for Development, etc. that deal with more specific issues. The latter initiative stated that the EU will play a leading role in global efforts to curb unsustainable consumption and production patterns as well as assist developing countries in implementing Multilateral Environmental Agreements (MEAs), and will work to ensure that the capacities of these countries are taken into account during MEA negotiations.

In spite of the different initiatives and commitments, the Commission staff working document on improving environmental integration in development cooperation (European Commission, 2009) concludes there is margin for improving the integration of environmental aspects in development cooperation. The actual use of the tools for facilitating the integration of environmental issues into development cooperation remains limited. The same holds for the actual use of the recommendations resulting from these tools. Furthermore, EU funding on country level seldom focuses on environmental issues. Besides, there is little evidence of developing countries being supported (via training and capacity building) with the formulation and implementation of sound environmental policies. (European Commission, 2009)

Additionally, the increased use of budget support as a method for aid delivery poses specific challenges for environmental mainstreaming. Despite recommendations, the use of SEAs in sectoral budget support programmes where significant environmental effects might be expected, it is not yet common practise. The problem here is not only a lack of capacity and knowledge, but also weak ownership. (European Commission, 2009)

In its peer review of EU development cooperation the OECD DAC (2012) stated the European Union still has to make progress in mainstreaming environmental issues in development cooperation activities. Although the environment has been indicated as one of the priority areas in the European Consensus on Development (EU Council, 2005) little progress has been made in preparing a strategy for mainstreaming environment and climate change issues into development cooperation. Today, the programming round 2014-2020 is already being discussed without such a strategy. The OECD DAC (2012) advises that that this strategy builds on applying existing guidelines and tools, in particular SIAs.

9.3. CONCLUSION

Despite the value attached to environmental sustainability in the Millennium Development Goals and the various EU initiatives on integration of the environment in development policy, the funding bequeathed to single countries is rarely spent on environmental issues. There is also room for improving the integration of environmental issues into the other themes development cooperation is addressing, as well as the use of the tools for actually facilitating that integration.

There are different ways to improve the current situation in order to better integrate the environment in development cooperation. In order to be able to make a sound integration there is a need to improve the quality and relevance of country (and also regional) environmental profiles. Meanwhile, it would be good to draw lessons from the current SEA practice and make sure all parties involved get tailored directives on how to improve their current SEA practice. There are however a number of critical side conditions that require constant attention, such as raising awareness and

developing the capacities of the staff working on the integration of environmental issues in development cooperation.

Through the thematic programme for Environment and Sustainable Management of Natural Resources including Energy (ENRTP) EU development cooperation money is used to integrate environmental protection requirements and climate change action into the Community's development and other external policies. Among the EU policy priorities to be addressed through the revised ENRTP strategy are (1) supporting the development of mitigation actions, including Reducing Emissions from Deforestation and Forest Degradation (REDD+), and key implementing tools and (2) supporting sustainable management of natural resources with a focus on forest governance through implementation of the Forest Law Enforcement Governance and Trade (FLEGT) Action Plan and the EU's forthcoming Biodiversity Strategy. The ENRTP also plays an important role in promoting policy coherence for development. It is a key tool both for testing approaches and for pilot actions that can be scaled up under geographical programmes. A critical aspect, however, is the need for more resources as the learning curve for most developing countries is quite steep.

The quality of the environmental policies already employed in the receiving countries, or at least the apparent willingness to make progress in this respect, could be used as a key element for deciding on the allocation of aid. The experience of the EU with the reform and implementation of environmental policies and instruments in the newer EU Member States or countries applying for accession could be used as leverage for reforming environmental policies in developing countries.

9.4. LITERATURE

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CHAPTER 10 RESEARCH AND INNOVATION POLICY

10.1. INTRODUCTION

According to the Commission's Communication 'Roadmap to a Resource Efficient Europe', "the transition to a green and low-carbon economy will require significant innovation, from small incremental changes to major technological breakthroughs." This innovation will be realized by providing the right incentives to the market and by creating clear framework conditions for investors. The EU milestone consists in substantial increases in investment, coherence in addressing the challenges and gains from smart specialization, leading to scientific breakthroughs and sustained innovation efforts, improving resource efficiency (European Commission, 2011a).

In 2013, the well-known Seventh Framework Programme (FP7) and Competitiveness and Innovation Framework Programme (CIP) will be replaced by Horizon 2020, while European Innovation Partnerships (EIPs) and Joint Technology Initiatives (JTIs) should help to coordinate between the programs and between member states.

The Research and Innovation potentially can affect the global land use impact and deforestation impact of EU consumption through its research topics. Research can be undertaken in the following fields:

- 1.a. Research into the reduction of the land use impact of the production of primary commodities;
- 1.b. Research into the level of deforestation impact of the production of primary commodities;
2. Research into the reduction of embedded land use and deforestation of products through as part of sustainable production practices;
3. Research into supply chains and business models contributing to the reduction of land use and deforestation impacts of products and services;
4. Research into sustainable consumption practices leading to increased consumption within the EU of commodities and products with low deforestation impact

10.2. RELEVANT LEGISLATION AND POLICY INSTRUMENTS

The main legislation and other instruments governing this policy are as follows:

10.2.1. SEVENTH FRAMEWORK PROGRAMME (FP7) AND COMPETITIVENESS AND INNOVATION FRAMEWORK PROGRAMME (CIP) (TO BE REPLACED BY HORIZON 2020)

The EU goal for Horizon 2020 is to focus EU research funding on key resource efficiency objectives, supporting innovative solutions for: sustainable energy, transport and construction; management of natural resources; preservation of ecosystem services and biodiversity; resource efficient agriculture and the wider bio-economy; environmentally friendly material extraction; recycling, re-use, substitution of environmental impacting or rare materials, smarter design, green chemistry and lower impact, biodegradable plastics (European Commission, 2011a).

From 2007 to 2012, the largest component of the **Seventh Framework Programme (FP7)**, "cooperation", has been focusing on 10 topics. With regard to deforestation, especially relevant are

(i) nanoproduction: from a resource-intensive to a knowledge-intensive economy, (ii) energy: towards a more sustainable energy system, (iii) food, agriculture and fisheries, and biotechnology: innovative bio-resources and –technologies and (iv) environment: interactions between biosphere, ecosystems and human activities. According to the Wuppertal Institute (Bleischwitz, 2009), up to 30% of the 32 billion FP7 budget is estimated to address environmental technologies, including a.o. alternative energy sources, CCS, biofuels, energy efficiency, environmentally friendly materials and waste management.

However, the impact on deforestation is not unambiguous. Resource efficiency can have a positive effect on the reduction of deforestation by reducing the amount of waste and thus consumption in general. However this impact on consumption is not necessarily targeted at products that contain embodied deforestation. Not all technologies with potentially positive climate mitigation effects necessarily have a positive effect on deforestation. The impact of biofuels as an alternative for fossil fuel technologies are discussed in CHAPTER 4.

Until the convergence to Horizon 2020 in 2013, the **Competitiveness and Innovation Framework Programme (CIP)** is the EU instrument to ‘tackle barriers to eco-innovation’, which is one of the goals stated in the Roadmap to a Resource Efficient Europe (European Commission, 2011a). Next to the rather technological perspective in FP7, CIP comes closer to the key mechanisms stated in the Roadmap, i.e. providing the right incentives to the market and creating clear framework conditions for investors. In this sense it should have a direct impact on the supply chain and on consumption. The eco-innovation part of the programme targets SMEs in fields such as waste, food and construction, aiming at ‘greening’ the sectors or making them more sustainable, while the IEE Programme (Intelligent Energy Europe) is rigorously focused on purely energy (efficiency) topics.

10.2.2. THE ENVIRONMENTAL TECHNOLOGY ACTION PLAN (ETAP) AND THE ECO-INNOVATION ACTION PLAN (Eco-AP)

The **Environmental Technology Action Plan (ETAP)** was communicated by the Commission in 2004 (Calleja & Delgado, 2008; European Commission, 2011b). It was based on four main areas (research, markets, global action and, lastly, governance and coordination) and focused on nine priority actions (...). In 2011, the ETAP was replaced by the **Eco-Innovation Action Plan (Eco-AP)**. Based on the lessons learnt with the implementation of ETAP and environmental policy for eco-innovation, the Impact Assessment concludes that the urgency of a focused and improved eco-innovation policy requires a combination of taking forward the Europe 2020 Flagship “Innovation Union” as well as SME-targeted actions. Three key elements came out as crucial for the succeeding of Eco-Innovation: a focus on business, a need for demand-side policies and mobilising financial resources (European Commission, 2011b).

In the Eco-AP, the core set of industries taken into account is based on 36 activities listed by the OECD. Sustainable Forestry is addressed and taken up in the Resource Management Group (European Commission, 2011b). Overall, an improved eco-innovation⁹ plan can have an indirect effect on land use, impacting deforestation.

⁹ Definition: Eco-Innovation is any form of innovation resulting in or aiming at significant and demonstrable progress towards the goal of sustainable development, through reducing impacts on the environment, enhancing resilience to environmental pressures, or achieving a more efficient and responsible use of natural resources (European Commission, 2011b).

10.2.3. EUROPEAN INNOVATION PARTNERSHIPS (EIPs) AND JOINT TECHNOLOGY INITIATIVES (JTIs)

The **European Innovation Partnerships (EIPs)** were developed to stimulate cooperation between public and private actors to tackle major challenges in an innovative way. In a first phase, an EIP on active and healthy ageing was launched, followed by partnerships on water, agricultural productivity and sustainability (...). In the Roadmap to a Resource Efficient Europe, also an EIP on raw materials is mentioned (European Commission, 2011a). By streamlining the efforts and using financial resources in a more efficient way, the last four EIPs mentioned can have an indirect impact on deforestation.

Joint Technology Initiatives (JTIs), or other forms of private-public partnerships, and Joint Programming Initiatives are put forward in the goals of the Roadmap to a Resource Efficient Europe (European Commission, 2011a). Initially, at their start-up in 2005, the JTIs were meant to “define research and development priorities, timeframes and action plans on a number of strategically important issues where achieving Europe’s future growth, competitiveness and sustainability objectives is dependent on major research and technological advances in the medium to long term” (European Commission, 2005). JTIs exist in parallel with European Technology Platforms (ETPs), but can sometimes replace them (e.g. innovative medicines and fuel cells and hydrogen) (European Commission, 2009). The involvement of private companies to ensure an actual implementation could contribute indirectly to a reduced impact on land use and thus deforestation using specific technologies.

10.3. CONCLUSION

The EU innovation policy clearly has an indirect impact on land use and deforestation, based on its present and future research topics. The Seventh Framework Programme (FP7) has a clear purpose of increasing research efficiency in sectors such as nanoproduction, energy, environment, food, agriculture and biotechnology. The Competitiveness and Innovation Framework Programme (CIP) contains the Eco-Innovation Programme, focusing on tackling market barriers to eco-innovation. The Environmental Technology Action Plan (ETAP) – replaced by the Eco-Innovation Action Plan (Eco-AP) in 2011 – is combining the Europe 2020 Flagship “Innovation Union” goals with SME-targeted actions.

In the coming years, the evolution from a patchwork of programmes to a coherent structure can have a positive effect on reaching the goals, in case an equal amount of resources will be made available. As part of a strategy to reduce EU impact on deforestation, the Commission could increasingly target the programming of its research programmes towards this subject.

10.4. LITERATURE

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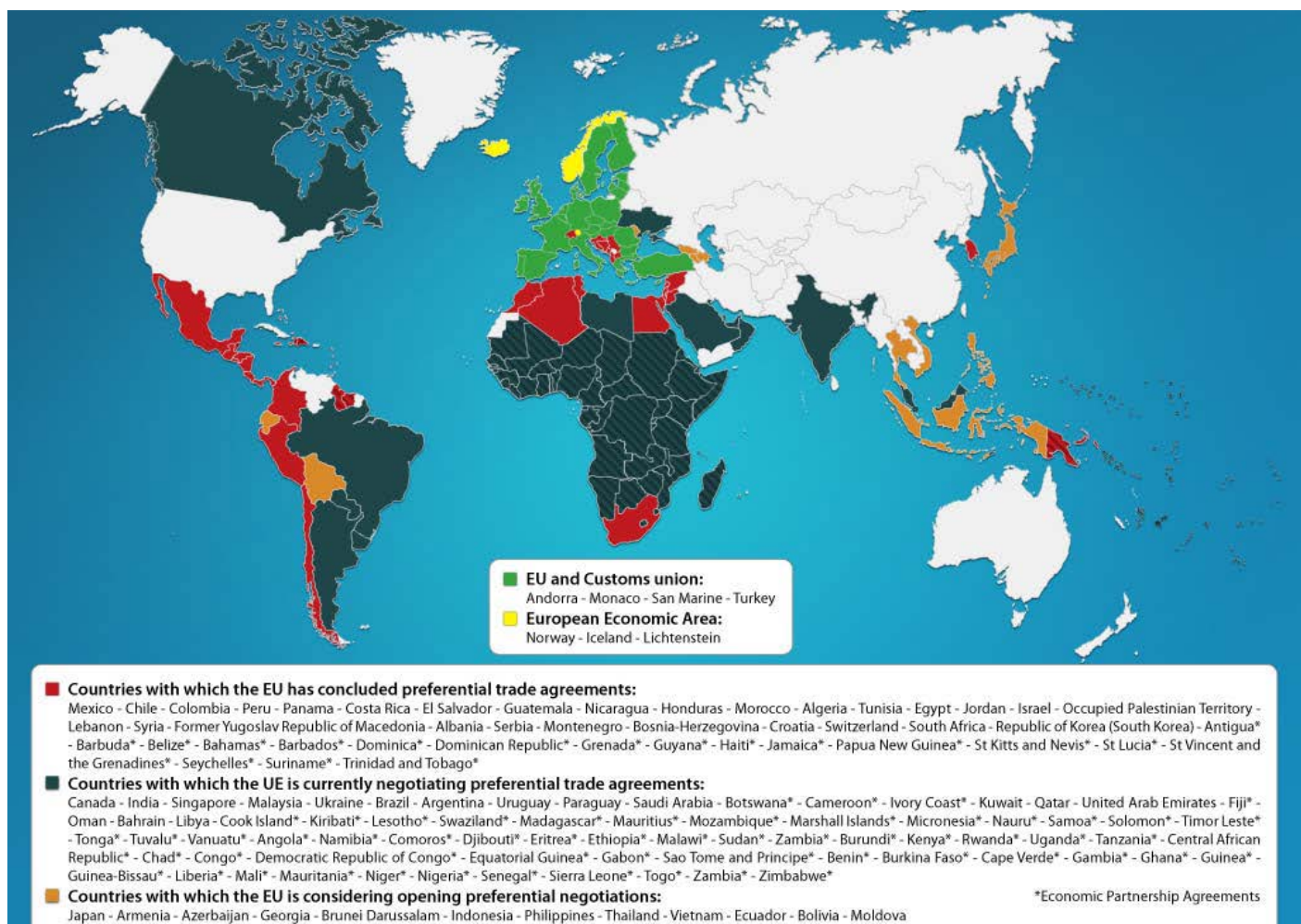
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Annexes

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Annex 1 Overview of concluded Free Trade Agreements (FTAs), FTAs under negotiation and association agreements/negotiations with an FTA component



Source: http://trade.ec.europa.eu/doclib/docs/2012/june/tradoc_149622.jpg

Annex 2 SIA for the EU - Mercosur free trade negotiations

On the basis of:

- European Commission (2010e). Position paper of the trade SIA of the association agreement under negotiation between the European Union and Mercosur.
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Mercosur unites the economies of Argentina, Brazil, Paraguay and Uruguay. Venezuela was accepted as a member in 2006 and is currently in the process of integrating into Mercosur. The analysis linking consumption to deforestation (Task 2) revealed that a very important part EU imports of goods and services that can be associated with deforestation stem from Brazil, Argentina, Paraguay.

Negotiations for an inter-regional Association Agreement, which should include full liberalization of trade in goods and services in conformity with WTO rules, were launched in 1999 but were suspended in October 2004. Since 2010 negotiations of the EU - Mercosur free trade agreement are relaunched.

The SIA concluded that:

- In the EU the only sector where social impact would be felt is agriculture and rural areas where short to medium term social adjustment costs could occur during a transition period and could add to the underlying downward trend in baseline agricultural sector employment in the EU.
- The expansion of agriculture in Mercosur, which follows an internal trend in this region, could cause social problems to the "traditional agriculture". Transitional adverse effects could impact on employment, and result in "loss of livelihoods for indigenous people". It is also mentioned that small scale farmers could be the losers of that process, including women.
- Both positive and negative environmental impacts in the EU and Mercosur countries could arise depending on the policy measures that are taken to accompany the agreement. These are not expected to be very significant in the context of the EU's regime and depending on the mitigating measures that are taken. Increased imports of raw materials could potentially induce land abandonment in the EU.
- In Mercosur, full trade liberalisation in the agriculture and the forest sector could result in added pressure and potentially significant adverse impacts on natural resources, forest coverage and biodiversity, which would require adequate measures.
- On the positive side, Mercosur is expected to benefit from an increased access to environmental services.

The Consultants note the need for Mercosur countries to strengthen their environmental regulation in order to offset adverse impacts of forest conversion and expansion in agricultural production, while exploiting potential gains. The European Commission acknowledges that the Mercosur countries have the responsibility for strengthening their national and regional legislations in this area and live up to the obligations under Multilateral Environment Agreements to which they are Parties (European Commission, 2010e). With respect to biofuels, it is worth recalling that the issue of land conversion will be covered by the certification scheme that the EU Renewable Energy Directive (RED) 2009/28/EC has put in place.

