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Impact of Environmental Agreements on the CAP

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Expected impact of the Kyoto Protocol on European forestry

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Introduction

About 27% of Europe's land area is covered by forest. In most European countries the contribution of the forestry sector to the Gross National Product is not particularly high, although in Finland it accounts for about 8 % of GNP. With growing industrialization and urbanization in Europe, forests are becoming increasingly important for carrying out other functions besides wood production. These include recreation, biodiversity, nature conservation and various protective functions. With growing concern over the impacts of climate change, forestry has also been recognized for its mitigation potential, specifically in terms of carbon sequestration. Therefore, international policies require the inclusion of forests and landscape for emission inventories and reporting in order to quantify their contribution to the total greenhouse gas balance of each individual country. This should provide the basis for active management aimed at increasing carbon storing capacity in the current forest landscape.

The two current climate policy treaties that concern forestry are i) the United Nations Framework Convention on Climate Change (further abbreviated as UNFCCC or Climate Convention) and ii) its Kyoto Protocol. The Climate Convention, which entered into force in 1994, sets an overall framework for intergovernmental efforts to tackle the challenges posed by climate change. Under UNFCCC, the governments gather and share information on greenhouse gas emissions, national policies and best practice. They are also expected to launch national strategies for addressing greenhouse gas emissions and adapting to the expected impacts, including the provision of financial and technological support to developing countries and cooperation in preparing for adaptation to the impacts of climate change (www.unfccc.org). The Convention itself does not contain any commitments to reduce greenhouse gas emissions. Instead it was used by the governments to start work early on a treaty setting the specific obligations to reduce emissions. This led to the preparation of the text for the Kyoto Protocol which was adopted at the 3rd Conference of Parties (COP) in Kyoto, Japan in December 1997.

The aim of this report is to discuss the potential impact that the Kyoto Protocol may have on forestry in European countries¹.

Kyoto Protocol

Description of obligations

The Kyoto Protocol entered into force on February 16th, 2005, when 55 countries, accounting for at least 55 % of the total carbon dioxide emissions for 1990, ratified the Convention. The Protocol commits the industrialized nations and those with economies in transition to reduce their greenhouse gas emissions in the first commitment period (2008-2012) by at least 5% with respect to the base year (1990, with some exceptions). The actual commitment varies among countries, and may be shared in a group of countries. This possibility has been applied

¹ Please note that this report is a further complement to a MEACAP report by Fondazione Eni Enrico Mattei (FEEM) on "The Kyoto Protocol: Current State and Implication for EU-25 Member States. A Focus on Agriculture and Forestry", document number MEACAP WP2 D3. FEEM's report and its addenda (downloadable at <http://www.ieep.org.uk/publications/publications.php?search=39&Submit=Submit>) provide an overview and assessment of developments in international and European climate policy that could have important implications for forestry and agriculture. The present report goes into more detail of possible interactions between the Kyoto Protocol and the forestry sector.

in the case of the EU15 which has jointly committed to a reduction of 8 % (the so-called “EU bubble”), although the targets are different for its individual Member States.

Kyoto Protocol and forestry/LULUCF sector

An important aspect of the Kyoto Protocol is the possibility of offsetting part of the emissions reduction by using carbon sinks in the “Land Use, Land Use Change and Forestry” (LULUCF) sector. The negotiations over the role of biological carbon sequestration and the inclusion of LULUCF within the framework of the Kyoto Protocol were particularly complicated for a number of reasons and uncertainties relating to this (see e.g., Schulze et al. 2002). The final agreement was reached at COP 7 in Marrakesh, Morocco, and it is thereby termed the Marrakesh Accords (MA). In practice, this agreement means that up to about 3 % of emissions may be offset by the LULUCF activities, thereby leading to a de-facto emission reduction of only 2.2 % under the Kyoto Protocol, i.e., less than the originally agreed 5.2 % reduction of emissions (Ott 2002). This interpretation is vital to understand the two positions one may take when considering the effect of forestry activities on the carbon cycle. On one hand, the LULUCF sector represents a manageable resource that can offset some emissions of CO₂ and at least temporarily store it. On the other hand, it may reduce the pressure to cut emissions in the energy and industrial sectors.

Description of 3.3. and 3.4 activities, the cap principle

Article 3.3 of the Kyoto Protocol states that all Annex I countries must report emissions connected to afforestation, reforestation and deforestation (ARD) activities. These emissions will be taken into account in determining the level of emissions reduction compliance of Annex I countries.

Article 3.4 lists additional activities in the LULUCF sector that may be optionally included in the Kyoto Protocol commitment of the individual party. These activities include Forest Management, Cropland Management, Restoration of Vegetation, and Grazing Land Management.

The Forest Management option allows the net forest carbon stock increase generated over the selected area covered by managed forests to be accounted for. As decided at the Marrakesh Accords, Forest Management activities can offset eventual emissions by resulting from afforestation, reforestation and deforestation activities (Article 3.3) up to a maximum of 9 Mt C, while other emissions offset by Forest Management are subject to a fixed maximum cap².

This report focuses only on the optional aspects of Forest Management, which directly affect forestry in European countries. At the same time there is an awareness that afforestation and reforestation activities are mainly taking place on non-forest land and that this concerns decision-making in the agricultural sector. Similarly, deforestation usually cannot be considered as a deliberate choice by a forest manager, although it does concern forest land in this case.

² The cap for the maximum offset generated from Forest Management was estimated individually for each Annex I country. It was set so as to represent 15 % of the reported sink in Forest Management, but no more than 3 % of the Assigned Amount Units (AAU), whichever was lower. Hence, the Forest Management cap commonly represents just a small fraction of the carbon sequestration in managed forests in European countries.

Forest Management Option

To aid consistent quantification of emissions and ensure transparent reporting, UNFCCC commissioned the Intergovernmental Panel on Climate Change (IPCC) to elaborate guidelines for the LULUCF sector. In 2003, COP 9 adopted the IPCC Good Practice Guidance (IPCC 2003), a comprehensive methodological manual to guide the LULUCF emission inventory of the UNFCCC and Kyoto Protocol parties. With respect to the Kyoto Protocol and LULUCF related requirements, these were outlined in paragraph 1 of the Annex to the Draft decision - /CMP.1 (Land Use, Land-Use Change and Forestry) contained in document FCCC/CP/2001/13/Add.1, p.58. Of these, it is vital to note the IPCC definition of Forest Management, which fundamentally determines the management practices and therefore forest areas potentially concerned by the activity of Forest Management under Art. 3.4 of the Kyoto Protocol as well. This definition reads as follows:

“Forest Management” is a system of practices for the stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner.

Obviously, this definition is very broad and may be applicable to nearly all forest areas that fulfil the definition of forest in European countries.

The actual area included by a party under the Forest Management option may focus on some forested regions only. Similarly, the parties may exclude the regions not considered suitable for taking into account Forest Management effects. Furthermore, it is becoming evident that in most cases, the parties choosing Forest Management in emissions accounting under the Kyoto Protocol will for this purpose adopt forest areas identical to those reported under UNFCCC (COST E43 WG2 questionnaire – unpublished results).

However, the topic of potential areas to be included under Forest Management is only one consideration required for taking decisions on the adoption of the Forest Management option. The decision of the parties to the Kyoto Protocol regarding voluntary activities under Art. 3.4. of the Kyoto Protocol should be reported to UNFCCC by the end of 2006. As for the EU countries, this information should already have been delivered to the European Commission by 15 June (Decision No 280/2004/EC). Since the decision on these activities is binding at least until the end of the first commitment period, the individual countries must carefully reconsider this issue from their specific national situation. Obviously, the implications of the Forest Management option are manifold and the issue requires thorough consideration.

Against this background, experts from several countries met from 2nd to 4th May 2005 at the “Land-use Related Choices under the Kyoto Protocol” workshop, which was initiated by the CARBOINVENT project³. One of the workshop sessions was devoted to the issue of the Forest Management option. It elaborated a list of advantages and disadvantages associated with opting for Forest Management, which is available at CARBOINVENT web page. The arguments for choosing Forest Management included positive side-effects it might have on forest monitoring, wider recognition of the public benefits of appropriate management, and the role of forestry in climate change mitigation. The listed counterarguments included a delay in mitigation action in the fossil-fuel sector, a risk of forestry being a source instead of a sink, and some additional costs for compiling an inventory and reporting.

However, in our opinion the major reasons why countries are likely to consider the formal adoption of Forest Management are:

³ CarboINVENT (Multi-Source Inventory Methods For Quantifying Carbon Stocks And Stock Changes In European Forests) was a EU (FP5) project (2002 to 2005). See www.joanneum.at/CarboInvent for more details.

- 1) where the cap allocated to a party is large enough to significantly aid meeting that party's emission target
- 2) the monetary value of the cap is significant (Figure 1)⁴
- 3) where this is seen as useful as a buffer for expected/potential emissions from activities under Art. 3.3 of the Kyoto Protocol

Obviously, these arguments will apply differently in the individual countries, depending on each country's specific Kyoto Protocol commitments and the current state of its compliance. This is discussed below.



Figure 1: The upper graph shows the development of Point Carbon's bid-offer closing price for EU carbon allowances; expressed in € per metric ton of CO₂. The volume graph below displays the aggregated volumes, i.e., total daily volumes for all products and contracts in kt CO₂ (Source: Point Carbon: www.pointcarbon.com). It may be observed that both the price and trading volume have increased considerably since Kyoto Protocol entered into force.

Current position of Forest Management in EU countries

As a result of political agreements, the contribution the forestry sector is authorised to make to meet any party's emission target under Kyoto Protocol is limited. It is expressed in the allocated Forest Management cap for the individual countries, which is relatively small (Figure 1, Figure 2). Despite this, Forest Management might still help to offset a (small)

⁴ Figure 1 is included to show the trend of CO₂ credits valuation. Note, however, that sink (forestry) credits are not included in the European Trading System (ETS). Eventual valuation of CO₂ credits generated in forestry depends on yet unpredictable circumstances and may be expected to be significantly lower as compared to ETS prices.

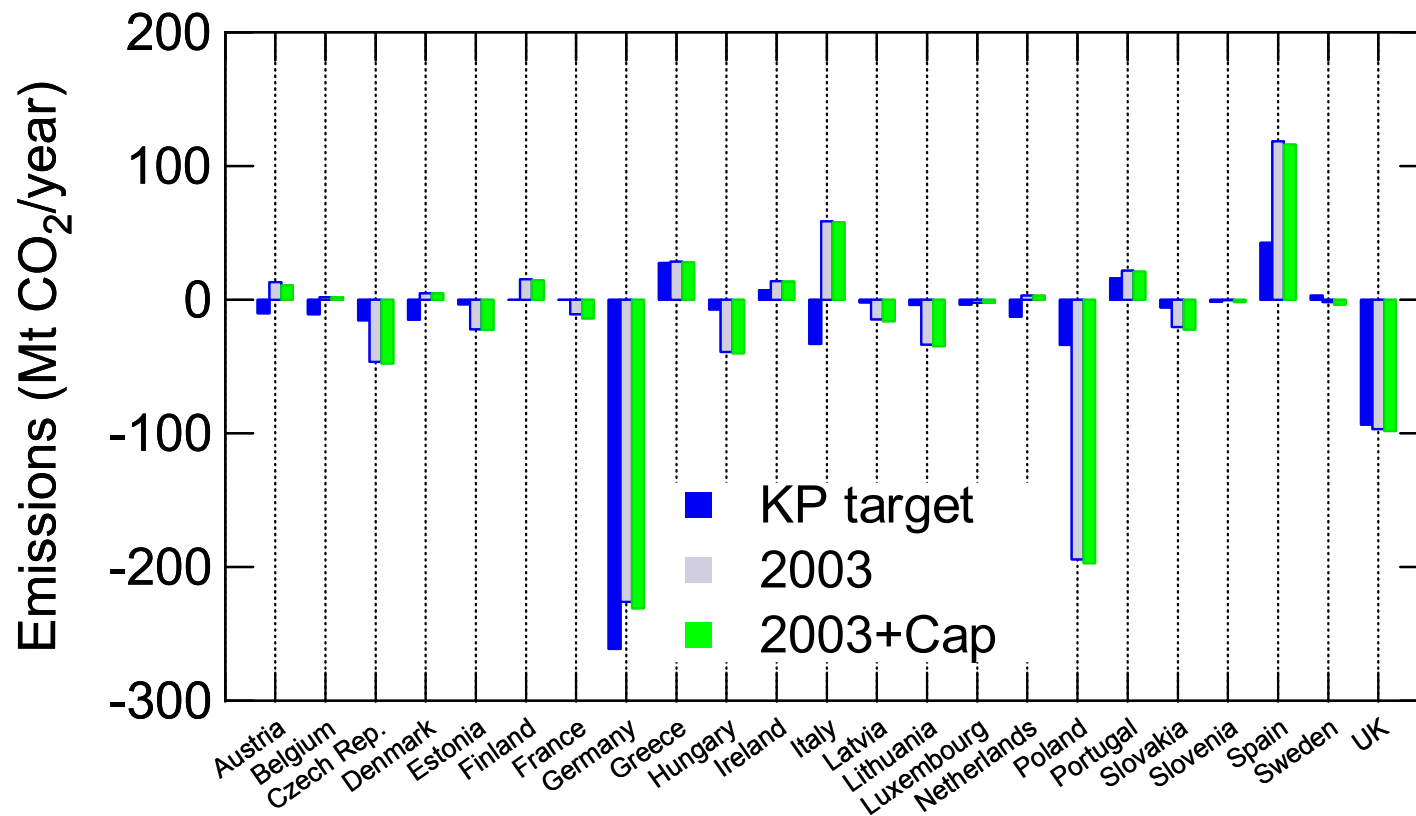


Figure 1: Overview of the EU countries' commitment under the Kyoto Protocol (KP). KP target - the estimated emission reduction target based on the committed KP percentage and the most recently GHG emissions reported to UNFCCC for the year 1990⁵; 2003 – emission compliance as of 2003 (2002 for Poland) excluding LULUCF; 2003+Cap – emission compliance as of 2003 (2002 for Poland) including the potentially accountable cap from Forest Management.

⁵ Note, however, that the base year differs for some countries.

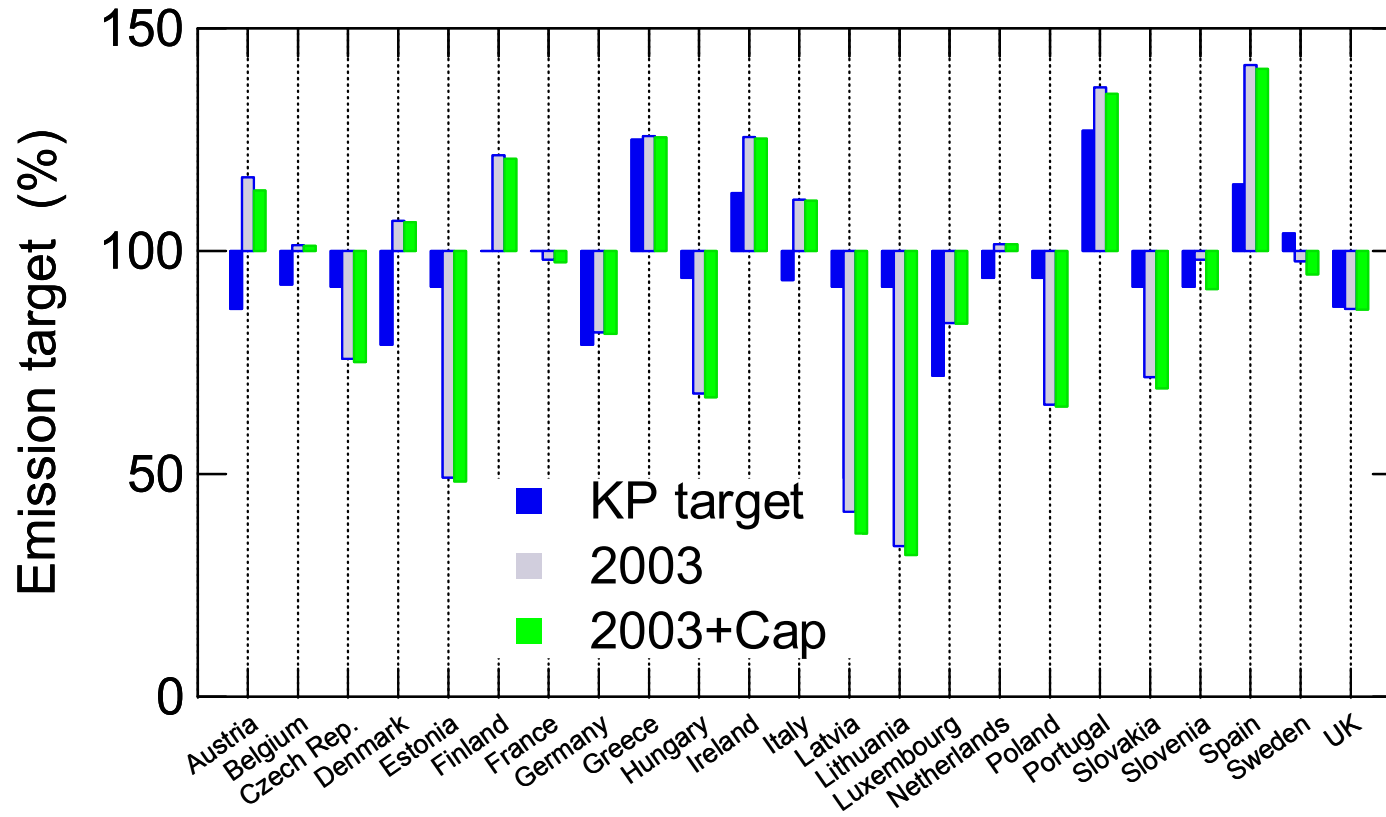


Figure 2: Kyoto Protocol emission target for individual countries expressed on a relative scale. KP target gives the committed emission target under the Kyoto Protocol for the individual countries, 2003 denotes the emission reduction achieved by 2003 (2002 for Poland), while 2003+Cap includes the country-specific Forest Management cap expressed on a relative scale for these countries.

proportion of emissions, which might be an attractive choice for those countries that face difficulties in meeting their Kyoto Protocol commitment. This is generally expected to be the case for certain EU15 countries, such as Austria, Denmark, Spain and others (Figure 2), whereas the new EU10 countries commonly benefit from a base year of 1990, since it represents a period prior to rapid industrial growth and the closure of inefficient and outdated industrial plants after the political changes following the collapse of communism. As a result, most of the new Member States safely meet their Kyoto Protocol target, most notably the Baltic countries (Figure 1, Figure 2).

With respect to the reasons for opting for Forest Management listed above, one may expect that Slovenia, for example, represents a country in which forestry can significantly contribute to Kyoto Protocol compliance. Its cap for Forest Management is large and currently if utilised would ensure that it would meet its Kyoto Protocol target (Figure 2). This country has already decided to opt for Forest Management in its Kyoto Protocol accounting (Table 1).

As for the motivation of monetary value, this may be vital for other Member States new to the EU. These countries mostly safely meet their Kyoto Protocol targets and they are under no pressure to use the credits potentially available from Forest Management. However, the forestry sector may eventually claim some of the monetary value for CO₂ credits that the country might offer to other Kyoto Protocol parties. The current price level of CO₂ credits as established under the Emissions Trading System (ETS) (Figure 1) may represent a strong motivation for some countries to explore the possibilities of crediting the forest sector via adopting Forest Management to aid Kyoto Protocol compliance. However, it must be stressed that since ETS does not include sinks (CO₂ credits generated in forestry), the eventual valuation of CO₂ credits generated in forestry might be significantly lower as compared to the current ETS prices. With no market available for sinks, the valuation depends on currently unpredictable circumstances and individual agreements among the parties exchanging CO₂ credits. Since the likely exchange might only concern AAUs (Assigned Amount Units), the eventual credit to forestry for its contribution to emissions targets may be realized only via internal agreements within the relevant sectors of a country. In practice, the cap for Forest Management will count as part of the country's commitment, potentially making some AAUs available for trade. Therefore, the motivation exists, e.g., for the Czech Ministry of Environment to pursue Forest Management, because it may represent a viable option to eventually acquire funds for the forestry sector.

Finally, Forest Management may be attractive to any country that expects an increase in emissions associated with the obligatory reported activities of afforestation, reforestation and deforestation (ARD) during the 1st commitment period. In such cases, Forest Management may act as a buffer to balance the potential emissions up to the 9 Mt C ceiling (the total for the commitment period) plus the prescribed cap. However, this option can be regarded as theoretical in the EU at present as it is unlikely that ARD activities will result in significant emissions within the European countries in current conditions.

Table 1 describes the current situation regulating the Forest Management option selection process in European countries. It is based on information from the individual UNFCCC focal points and on the COST E43 (www.metla.fi/eu/cost/e43) WG2 questionnaire responses (from February 2006). As can be seen, only 10 countries have already made a decision to opt for Forest Management. Since about half of the countries addressed have not yet decided on the choice, few general observations can be drawn at this stage.

Table 1: Forest Management option for emissions accounting (as of February 2006). No information was available from the countries in italics (Source: UNFCCC focal points and COST E43 (www.metla.fi/eu/cost/e43) WG2 questionnaire responses)

	YES	NO	Undecided
Austria		X	
Belgium			X
Czech Republic			X
Denmark			X
Estonia	X		
Finland		X	
France	X		
Germany			X
Greece			X
Hungary			X
Ireland		X	
Italy			X
<i>Latvia</i>			
<i>Lithuania</i>			
<i>Luxembourg</i>			
Netherlands		X	
Poland			X
Portugal	X		
Slovakia			X
Slovenia	X		
<i>Spain</i>			
Sweden	X		
UK	X		
Totally	6	4	9

Conclusions

The effect of the Kyoto Protocol on forestry in Europe during the first commitment period is expected to be minor because of the rules established under the Marrakesh Accords and the current circumstances in the EU Member States. Forestry is allowed to contribute only a small proportion of its mitigation potential to national emission targets. While Forest Management may be adopted by some countries, more commonly, the cap imposed on potential credits from forestry does not provide a sufficiently strong incentive to choose Forest Management activity for accounting under the Kyoto Protocol. Additionally, in the absence of a market for carbon sinks, there is no direct way at present to put an economic value on the potential contribution of sinks within the national emission budgets of the individual parties to the Kyoto Protocol. This makes the position of the forestry sector within the current framework of the Kyoto Protocol and Marrakesh Accords weak. However, an indirect effect of the Kyoto Protocol on the forestry sector can be seen in the growing awareness of forestry and its role in the carbon cycle and national/global emission balance.

References

- IPCC, 2003. Good Practice Guidance for Land Use, Land-Use Change and Forestry. Penman J., Gytarsky M., Hiraishi T., Krug T., Kruger D., Pipatti R., Buendia L., Miwa K., Ngara T., Tanabe K. and Wagner F. (Eds.). IPCC/OECD/IEA/IGES, Hayama, Japan. ISBN 4-88788-003-0
- Ott, H.E., 2002. Climate Policy After the Marrakesh Accords: From Legislation to Implementation. Global Climate. Yearbook of International Environmental Law, Vol. 12 (2001), Oxford University Press.
- Schulze, E.D., Valentini, R., Sanz, M.J., 2002. The long way from Kyoto to Marrakesh: Implications of the Kyoto Protocol negotiations for global ecology. Global Change Biology 8, 505-518.

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