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Addendum to the report: The Kyoto Protocol: Current State and Implication for EU-25 Member States. A Focus on Agriculture and Forestry.

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Executive Summary

This addendum provides a brief update on new developments in international and European climate policy that could have important implications for forestry and agriculture. In this way, FEEM's report on "The Kyoto Protocol: Current State and Implication for EU-25 Member States. A Focus on Agriculture and Forestry" is updated by including new events that have characterised international climate policy during the last months. Some of the conclusions on the role of agriculture and forestry in the context of GHG control were drawn in the original report,and therefore might warrant modifications and should be considered in the light of changes in the policy arena.

In this paper, we will first verify what has happened in the international negotiations on the Kyoto Protocol. We will then analyse the actual weight the agriculture and forestry sectors have gained during the last months by discussing the relevant developments in the Clean Development Mechanism, and then investigating potential policy developments at the EU level. A range of policies and measures that have been introduced in the context of the European Climate Change Program will be examined, with their possible implications for agriculture and forestry. Special attention will be given to the potential provided by the EU Emissions Trading Scheme as regards these two sectors.

The analysis concludes that the year 2005 has been important for moving climate policy forward. The Kyoto Protocol has come into force, and the climate talks in Montreal have actually made it operational, launching in addition a process for post-2012 negotiations. Even though the future of international climate policy is still characterised by uncertainty, several decisions have been taken that render the current policy framework more effective. Principally, the Clean Development Mechanisms have been strengthened and streamlined, in an attempt to find a balance between the requirements of having more projects and keeping at the same time the environmental integrity high. Agriculture and forestry are among the sectors that are expected to play a larger role in the next phase of CDM projects.

In addition, several indications for Europe's future climate policy are already visible. Most importantly, there is an emphasis that the EU's climate policy will go beyond 2012. Many of the EU policies that are already in place will have an important impact beyond the Kyoto Protocol's first commitment period, including the link between the CAP and environmental objectives. A crucial role in the future of the EU's climate policy will be played the EU ETS. The scheme will automatically continue after 2012. This was emphasised by EC officials at the Montreal talks. This fact helps to provide some certainty to the broader climate policy framework, particularly with regard to the continued importance of the CDM as demand via the Linking Directive is ensured. In the longer run, an extension of the scheme to include further sectors and gases is envisaged, and agriculture and forestry could contribute to increase the flexibility and this cost-effectiveness of European climate policy. Furthermore, the second phase of the European Climate Change Programme is expected to include several other components important for the role of agriculture and forestry in the context of climate change control, such as carbon capture and storage, emissions from road vehicles, aviation and strategies to adapt to the effects of climate change (EC 2005). The role of the EU in reducing vulnerability to climate change and promoting adaptation will also be explored, and further policy initiatives in the field of energy efficiency and renewable energy are foreseen, further increasing the importance of the agriculture and forestry sectors. Finally, the 7th RTD Framework Programme, along with the established and new Technology Platforms, is expected to provide the means for a long-term shift to a CO_2 free economy. The potential of forestry and agriculture as efficient renewables, as well as hydrogen and fuel cells and zero emission fossil fuel power generation, will all be examined as part of this process.

1 Introduction

In this brief update we will analyse new developments in international and European climate policy that could have important implications for forestry and agriculture. We first will summarise what has happened in the international negotiations on the Kyoto Protocol, and then investigate potential policy developments at the EU level. Finally, we will attempt to identify potential trends for the future.

2 An overview of recent developments in international climate policy

2.1. The negotiations on the Kyoto Protocol

When the Kyoto Protocol came into force on 16 February 2005, the annual climate negotiation scheduled in Montreal, Canada, from November 28 to December 10, 2005, became a meeting of increasing historical importance. It served both as the **Eleventh Session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP 11)** and as the **First Meeting of the Parties to the Kyoto Protocol (COP/MOP 1)**.

At the meeting, the Kyoto Protocol was launched after 10 years of negotiations, initiated by the 1995 Berlin Mandate, which called for an agreement establishing quantified emission limits for developed countries. The COP/MOP 1 has finalised the outstanding operational details of the Kyoto Protocol. At the same time a new round of climate talks has been initiated both under the United Nations Framework Convention on Climate Change (UNFCCC) and under the Kyoto Protocol, focussing on the future of the international climate effort.

Let us first look in more detail at the key outcomes of the COP/MOP 1. At COP/MOP 1, the rulebook of the Kyoto Protocol was discussed and adopted, in particular the form of a package of decisions known as the "Marrakesh Accords." These decisions include guidelines for how the Protocol will function. For instance guidelines relating to the "flexible mechanisms" intended to help parties reach their emissions targets in a cost-effective way, and a compliance mechanism. In addition, the Clean Development Mechanisms – one of the Kyoto Protocol's flexible mechanisms, has been strengthened and streamlined. A number of methodological, administrative, financial and institutional matters were also considered. Finally, COP/MOP 1 took decisions on a process for considering new binding commitments after the end of the Protocol's first commitment period, for post-2012, for the Kyoto countries.

In parallel, COP 11 addressed a number of issues relating to capacity building, technology development and transfer, the adverse effects of climate change on developing and the least developed countries, as well as several financial and budget-related issues. After days of intense negotiations, the COP also launched a process on the future of climate change control under the UNFCCC, opening a nonbinding "dialogue on long-term cooperative action."

The decisions taken at the COP/MOP 1 and COP 11 on the future steps of climate policy are not formally linked, but the negotiations around them were still closely intertwined. The so-called Kyoto countries, e.g., the European Union, Japan and Canada, who the Kyoto Protocol obliges to begin considering new commitments for the period after 2012, strongly favoured a parallel process under the UNFCCC in order to engage key countries currently not participating in the Kyoto framework. Main attention was paid both to the United States and to (large) developing countries. During the negotiation process, some of the latter actively supported a new Convention process whereas others agreed only on the condition that it would not "open any negotiations leading to new commitments." Final consensus on future steps under the Convention was only possible after a last-minute change in the position of the United States, as it had previously opposed any new process under the Convention. U.S. negotiators only changed their position after they were left isolated

along with Saudi Arabia when major developing countries joined the Kyoto countries in their decision to launch a process under the Convention.

The change in the U.S. position was received as a major accomplishment at the meeting, given the priority that the reengagement of the U.S. in the climate talks has been amongst the world's governments. Both domestic policy pressures – from U.S. industry groups as well as from the Congress – and international policy signals – the fear of remaining isolated with Saudi Arabia whilst developing countries, whose absence from the Kyoto Protocol had been one of the major U.S. criticisms, were ready to cooperate – are driving forces of the U.S. decision.

Indeed, the change in the developing countries' strategy, related to the climate change efforts, was the main success of the negotiation round. Developing countries generally showed a greater willingness to discuss their stronger involvement in climate activities. Several of them even asked for new mechanisms or agreements capable of supporting voluntary developing country actions through market incentives or other possibilities[1].

In this context, particular attention was given to the potential of forests in climate change control. This item was brought up by the governments of Papua New Guinea and Costa Rica, countries which have seen aggressive deforestation of their large virgin rainforest. The two countries won support for a new process to consider approaches to reduce emissions from deforestation. In addition, Brazil called for "positive incentives" for forest conservation and other steps to reduce emissions.

Let us now analyse the key decisions taken at COP/MOP 1 and COP 11 in the context of agriculture and forestry[2].

Deforestation

Papua New Guinea and Costa Rica, supported by other countries, requested that an agenda item on "Reducing emissions from deforestation in developing countries: approaches to stimulate action" be included. Two ideas have been proposed: an "optional protocol" involving a group of developed and developing countries; and the expansion of the CDM to permit crediting of activities to reduce deforestation, which currently is not allowed. The proposal received widespread support, i.e. by Bolivia, the Central African Republic, Chile, Congo, Democratic Republic of the Congo, the Dominican Republic, and Nicaragua, as parties stressed the importance and the complexity of this issue and agreed to initiate a process to address it. In response to the request, the COP initiated a new process under the Subsidiary Body for Scientific and Technological Advice (SBSTA) to consider possible approaches for reducing GHG emissions from deforestation. In particular, in its decision (FCCC/CP/2005/L.2), the COP invites parties and accredited observers to submit, by 31 March 2006, their views on issues relating to reducing emissions from deforestation in developing countries, focusing on relevant scientific, technical and methodological issues (e.g., additionality, leakage, permanence, and monitoring), and the exchange of relevant information and experiences, including policy approaches and positive incentives and recommendations on any further process to consider these issues. The COP further requests SBSTA to organize a workshop before SBSTA 25, and to report back by 2007.

[1] In particular, while developing countries in general rejected absolute targets, they clearly signaled their willingness to intensify their contribution. For instance, South Africa advocated a "Kyoto-Plus regime" in which developing countries "do our fair share." and Mexico suggested "voluntary commitments" such as national policies and measures or sectoral emission targets.

[2] The full text of all COP 11 and COP/MOP 1 decisions is available at the UNFCCC website (http://unfccc.int/meetings/cop_11/items/3394.php).

Carbon Capture and Storage

A new IPCC Special Report on Carbon Capture and Storage stimulated intense discussions at the meeting. Accordingly, the Subsidiary Body for Scientific and Technological Advice (SBSTA) notes in its conclusions (FCCC/SBSTA/2005/L.26) that carbon dioxide capture and storage systems are in various stages of development, whilst requesting that the Secretariat organise an in-session workshop at SB 24 on carbon dioxide capture and storage, and encourage parties and the private sector to support related research, development, deployment and diffusion of such technologies. As a consequence, both the COP and the COP/MOP took steps to reflect on ways to progress capture-and-storage technologies.

In its decision (FCCC/SBI/2005/L.29), the COP requests the Global Environment Facility (GEF), which administers assistance to developing countries, to consider and report back on whether and how activities related to capture and storage, in particular capacity building activities, would be consistent with its strategies and objectives and, if so, how they could be incorporated within its operational funding programmes.

Being more specific, the COP/MOP asked the CDM Executive Board to consider proposals for new methodologies allowing capture and storage projects under the CDM. COP/MOP invites parties thus to make submissions on carbon dioxide capture and storage under the CDM. In addition, the Secretariat is requested to organise a workshop in conjunction with the next SBSTA meeting (SBSTA 24), in May 2006. Further guidance on carbon dioxide capture and storage should be given by COP/MOP 2 that will take place in late 2006.

Natural sinks

In order to render the Kyoto Protocol operable, the COP/MOP 1 adopted the Marrakesh Accords, provisionally agreed upon at COP 7. Among the 19 decisions recommended by COP 7, rules were adopted for crediting domestic sink activities, including reforestation, forest management and agricultural management.

Amongst others, a key decision of the COP 7 was the creation of a new Removal Unit (RMU) to represent sinks credits generated in Annex I countries (including through Joint Implementation), which can be used only to meet a party's emissions target in the commitment period in which they are generated. RMUs cannot be banked for a future commitment period. In addition, the Marrakesh Accords require Annex I parties to report on their sinks activities in order to be eligible to participate in emissions trading and the other mechanisms.

In its decision (FCCC/KP/CMP/2005/3/Add.1) on *Good Practice on LULUCF* the COP/MOP adopts the IPCC guidelines for providing information on anthropogenic greenhouse gas emissions by sources and removal by sinks from LULUCF activities.

LULUCF

As part of the Marrakesh Accords, a number of decisions on Land Use, Land-Use Change and Forestry (LULUCF) were also adopted. In particular, in its decision on LULUCF – Principles, Rules, and Guidelines (FCCC/KP/CMP/2005/3/Add.1), the COP/MOP adopts principles that govern the treatment of LULUCF activities, an annex establishing rules and guidelines for the first commitment period, and an appendix. These principles contain measures on the exclusion of carbon stocks from accounting, thus clarifying that accounting for LULUCF activities does not imply a transfer of commitments to a future commitment period, and that the reversal of any removal due to LULUCF activities must be accounted for at the appropriate time. According to the guidelines in the annex, in the first commitment period Annex I Parties may – amongst others – take account of afforestation, reforestation and deforestation activities from 1990 to 2012, up to a maximum amount determined in the appendix, multiplied by five; and may use credits arising from CDM projects on

afforestation and reforestation amounting to up to "one per cent of base year emissions, times (multiplied by) five."

In addition, among other administrative, financial and institutional matters, COP 11 took up an issue addressed in SBSTA, where parties had agreed to the revisions on the Common Reporting Format (CRF) tables and to consider at its next session, inter alia: how emissions and removals now covered in the LULUCF and agriculture sectors will be presented in the national totals; inventory issues associated with biomass burning and natural disturbances as they relate to reporting under the Convention; and the implications on reporting of the conversion to CO2 in the atmosphere of methane, carbon monoxide and non-methane volatile organic compounds emitted in association with carbon stock changes.

In its decision (FCCC/SBSTA/2005/L.19/ Add.1), the COP adopts the CRF tables and decides that each Annex I Party shall use these tables in their submissions of the annual inventory due in and after 2007, requesting the Secretariat to incorporate them into the Guidelines for the preparation of Annex I national communications in time for SBSTA 25.

Clean Development Mechanism

The improvement of the CDM in terms of strengthening and streamlining was a major objective of the Montreal climate talks, as business and host countries have worried that projects are moving too slowly through the CDM process and that after 2012 no certainty is guaranteed on the continuation of the mechanism.

In response to these concerns, the COP/MOP approved steps to clarify rules, increase transparency and communication of CDM decisions, speed the development of methodologies[3], strengthen governance, and provide more funding for the CDM Executive Board. In particular, in its decision (FCCC/KP/CMP/2005/L.7), the COP/MOP recognises the need to ensure the CDM's continuity beyond 2012. It also extends the deadline for retroactive crediting for early action ("prompt start" CDM projects), allowing projects initiated between 2000 and late 2004 to receive credits if registered by the end of 2006. The COP/MOP decision addresses CDM administration, requesting the Board to identify measures aimed at strengthening the CDM and its responsiveness to the needs of Parties and stakeholders and indicating that the Board must give adequate explanations for its decisions. To support the Board's operation, a levy on CDM proceeds to cover administrative expenses has been established, while at the same time several developed countries announced additional voluntary pledges of almost $8.2 million.

In addition, the COP/MOP states that large-scale projects can be bundled and decides that projects under "a programme of activities" can be registered as a single project, provided an appropriate baseline and methodologies are established. This decision could allow for a so-called 'programmatic' approach, crediting a range of activities such as energy efficiency improvements across a series of entities or an entire sector. Notwithstanding its decision to prevent local or national policies or standards from becoming applicable CDM projects, this decision opens the door for a broader range of potential CDM activities beyond those that are strictly project-based.

In parallel to the negotiations under the framework of the UNFCCC, alternative developments have also characterised international climate policy. In particular, in July 2005 six nations led by the US and Australia unveiled a complementary pact to the Kyoto Protocol, aimed at fighting global warming. The **Asia-Pacific Partnership on Clean Development and Climate (AP6)** constitutes a

[3] As indicated above, the COP/MOP invites parties to submit carbon capture and storage methodologies to the Board and requests also that a simplified methodology for small-scale projects switching from non-renewable to renewable biomass is developed.

voluntary, technology-based initiative to reduce greenhouse gas emissions without legally binding emissions targets, whose main idea is to develop new technologies and deploy these in developing countries. Notwithstanding the characteristic of being voluntary, this agreement could be interpreted as a further step in the direction of a more comprehensive climate policy.

In January 2006, the first meeting of the AP6 took place in Sydney, at which a final communiqué was adopted that underscored the goals of greater energy efficiency and lower greenhouse gas intensity, without mentioning absolute reductions in greenhouse gases[4]. In particular, the communiqué describes the AP6's intentions to "demonstrate and implement cleaner and lower emissions technologies that allow for the continued economic use of fossil fuels." To achieve this goal, eight public-private sector task forces were set up, covering cleaner fossil energy; renewable energy and distributed generation; power generation and transmission; steel; aluminium; cement; coal mining; and buildings and appliances. These task forces need to report on progress in early 2007[5].

2.2. The importance of forestry and agriculture for the CDM mechanism in real world

Implementation of the Clean Development Mechanism (CDM) has proceeded in parallel to the negotiations on the Kyoto Protocol. Let us therefore summarise the progress that forestry- and agricultural-relevant considerations have made with respect to the CDM in practice.

Table 1 provides an overview on approved methodologies for CDM project activities in forestry and agriculture. In the agricultural sector, two large scale methodologies and one small scale methodology have been approved. In contrast, the CDM related to afforestation and reforestation has only observed the approval of its first large scale methodology.

[4] For more information on the inaugural meeting of the AP6 see http://www.dfat.gov.au/environment/climate/ap6/.

[5] For more information on this pact – signed by the US, Australia, Japan, China, India and South Korea – see for example http://www.whitehouse.gov/news/releases/2006/01/20060111-8.html

Table 1: Overview on approved methodologies for CDM project activities in forestry and agriculture

Approved Baseline and Monitoring Methodologies in Agriculture			
Approved Large Scale Methodologies			
Methodology Number	**Methodology Title (including baseline and monitoring methodologies)**	**Sectoral Scope***	**Approval History**
AM0006	GHG emission reductions from manure management systems	13, 15	Methodology Title: NM0022-rev: Methane capture and combustion from swine manure treatment for Peralillo
AM0016	Greenhouse gas mitigation from improved animal waste management systems in confined animal feeding operations --- Version 2	13, 15	Methodology Title: NM0034-rev2: Granja Becker Greenhouse Gas (GHG) Mitigation Project
Approved Small Scale Methodologies			
AMS-III.E.	Avoidance of methane production from biomass decay through controlled combustion	13, 15	
Approved Methodologies for afforestation and reforestation CDM project activities			
Approved Large Scale Methodologies			
AR-AM0001	Reforestation of degraded land The additionality of the project activity shall be demonstrated and assessed using the Tool for the demonstration and assessment of additionality for afforestation and reforestation CDM project activities	14	Methodology Title: ARNM0010: Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, China

*Sectoral scope number corresponding to the following sectoral scopes: 13 = Waste handling and disposal; 14 = Afforestation and reforestation; 15 = Agriculture

Source: UNFCCC website **http://cdm.unfccc.int/methodologies**

2.3. Consequences of recent developments in the international climate policy arena

Notwithstanding the relatively vague final decisions on the post-Kyoto period, the Montreal climate talks are generally considered a success and an important milestone in moving climate change control ahead. Given the difficult situation from which the negotiations started, many potential pitfalls have been overcome and consensus has been achieved on a number of urgent issues. Without a doubt, the future of international climate policy is still characterised by large uncertainty, but the Kyoto Protocol is finally operational and a post-2012 process has been initiated. In particular, multiple pathways to move forward within the UN framework have been established as a first step to tackle the future challenge of climate change more comprehensively. These two major outcomes from the recent climate talks send a strong signal on international climate policy and provide a firm foundation for European policy on GHG emission reduction.

Positive signals for international and European climate policy have also been provided through the decisions taken in the context of the Clean Development Mechanism. The COP/MOP 1 has certainly ensured that the CDM moves forward, calling for measures to improve the Executive Board's functioning, transparency and efficiency. This outcome is also important in order to increase the weight of agriculture and forestry in the context of CDM projects, as the decision encourages the Board to consider new ways of demonstrating additionality and to further elaborate certain project types and methodologies, e.g. carbon capture and storage. In this way, the currently still relatively weak presence of agriculture- and forestry-related CDM projects (as evidenced by Table 1, a total of 5 methodologies have been approved out of 48 approved CDM methodologies,

including large-scale, small-scale and consolidated methodologies) could experience a boost. For example, carbon capture and storage technologies are not excluded from CDM, so if a methodology were submitted and approved by the Board, then it could set a precedent for more.

The major economic consequence of decisions related to the CDM is that the preparation and approval of CDM projects should become easier, implying that an increase in projects is expected, as requested by many parties. The entry-into-force of the Kyoto Protocol and the EU Emissions Trading Scheme have created a strong upwards trend in the demand for project-based credits, as these projects represent a way to comply cost-effectively with the emission-reduction requirements. The process related to the approval of CDM projects has been very complex and slow up until now, leading to the issue of very few project-based credits, thereby impeding the fall of the price on the carbon market to fall. The new situation signals that the process will become easier and faster, enabling a lowering of the price of carbon allowances and accordingly the compliance cost, particularly for countries with high marginal costs, such as the EU.

Finally, even though being described as "complementary" to the Kyoto Protocol, the approach of the AP6 has received a lot of attention during the last months, and will continue to play a significant role in the post-2012 negotiations on climate policy. Still, at least in its current stage, the AP6 does not appear to be a viable alternative for the future climate architectures, given the lack of (even voluntary) targets or for a way to measure the success of its activities. In addition, provisions for a carbon market are missing and there is not even a weak link between the AP6 and the established carbon market. Still, the AP6 is a way to include important players in climate change activities, as its set-up incorporates an economically viable way to reduce emissions. In the longer run, the approach represented by the AP6 could merge with a Kyoto-type strategy, enabling further progress towards the challenge of climate change control.

3 An overview on recent developments in the European climate policy

3.1. The European Climate Change Programme

The recognised need to reinforce EU climate change strategies after the Kyoto signature led the Commission to launch the European Climate Change Programme (ECCP) in June 2000. The ECCP was set up to help identify the most environmentally and cost-effective EU measures enabling the EU to meet its target under the Kyoto Protocol, complementing thereby Member States efforts. Eleven different working groups were established and have operated under the co-ordination of an ECCP Steering Committee with the goal of developing all the necessary elements of an EU strategy, in the form of proposals and recommendations, to implement the Kyoto Protocol. The ECCP now represents the main framework for policy action in this field, being the Commission's main instrument to discuss and prepare the further development of the EU's climate policy[6]. The "second phase" of the ECCP (2002-2003) was of particular relevance for agriculture and forestry[7].

The insights from the ECCP formed an important contribution to the October 2001 Communication[8] on the implementation of the first phase of the European Climate Change Programme", converting the ECCP results into a clear political commitment from the Commission. In February 2005, the European Commission announced in its Communication "Winning the battle

[6] Further information regarding the activities of the ECCP I can be found on the Commission's website for the European Climate Change Programme, http://www.europa.eu.int/comm/environment/climat/eccp.htm

[7] We refer to FEEM's "The Kyoto Protocol Current State and Implications for EU 25 Member Countries. A Focus on Agriculture and Forestry" by F. Bosello, B. Buchner, J. Crimi, C. Giupponi and A. Povellato for an in depth analysis of cost issues.

[8] European Commission (2001), COM (2001) 580 final

against climate change"[9] that the Commission "*will review progress and explore new actions to systematically exploit cost effective emission reduction options in synergy with the Lisbon strategy*", indicating that the launch of the Second European Climate Change Programme (ECCP II) effectively took place in October 2005.

Currently, a Review of the ECCP is ongoing, including many stakeholders and a strengthened focus on agriculture and forestry, that will lead to an improved climate policy framework in the EU in form of the ECCP II. Five working groups have been established for the ECCP II, and agriculture and forestry is represented in at least two of them, WG 1 on "ECCP I Review with 5 topical groups" and WG 2 on "Impacts and Adaptation with 10 sectoral groups". In addition, agriculture and forestry have a crucial role in the third working group that focuses on "Carbon Capture and Geological Storage". The general objective of the first Working Group is "*to review the implementation of climate change related EU-wide polices and measures, to assess their concrete implementation in the Member States, to assess the resulting actual and projected emission reductions, and on the basis of this analysis, to discuss the further development of EU climate change policies to achieve the EU's and Member States' obligations under the Kyoto Protocol, and beyond, in consistency with other policy areas.*" (Mandate WG 1: ECCP review)

The five Working Groups are supposed to deliver a report by March 2006 and, on the basis of these insights, the Commission will present a policy paper on the review of the ECCP to be discussed under the Austrian Presidency (i.e., by June 2006). Further indications on the future role of agriculture and forestry in the context of the European climate policy are therefore expected in the following months.

In addition, the growing importance of agriculture and forestry in relation to environmental policy has also been confirmed by an *Informal Meeting of Agriculture & Environment Ministers* that took place in London in September 2005 under the UK presidency. At the meeting, the relation between agriculture and climate change has been stressed, emphasising the need for both agriculture and environment Ministers to work together to help farmers and land managers face up to the challenges and opportunities which climate change presents. It was emphasised that the agricultural sector also needs to consider how it can contribute to reducing its own direct emissions of greenhouse gases, for instance through energy crop production and changing their management practices for fertiliser and manure application. Finally, adaptation to climate change has, in general, received increasing attention.

3.2. The European Emission Trading Scheme

The Greenhouse Gas Emission Allowance Trading Scheme and the Linking Directive are among the most important policy measures induced by the ECCP. As discussed in FEEM's first addendum to Deliverable D3 (November 2004), the European Emissions Trading Scheme (EU ETS) has been officially launched in January 2005, focusing however on industry sectors. Still, the adoption of the so-called Linking Directive introduces a stricter relationship between EU ETS and the project-based activities of the Kyoto Protocol, thus also opening the door for projects implemented in the agriculture and forestry sectors, as firms can use credits arising from CDM projects from 2005 and credits arising from JI from 2008.

As analysed above, a number of methodologies in the forestry and agriculture sectors have already been approved as valid for CDM projects. The link between the EU ETS and its currently price of about EUR 26/MtCO2eq and the project-based mechanisms and their relatively low prices of about

[9] European Commission (2005b), COM(2005) 35

EUR 5/MtCO2eq, has had consequences since the middle of last year (2005), as the prices for project-based activities continue to slowly increase up to a price range of EUR 6-14/MtCO2eq at the beginning of 2006. Yet, the full potential of the Linking Directive and of the agriculture and forestry sectors has not yet been exploited due to a number of qualitative and quantitative limitations. On the one hand, Member States will have to specify a limit up to which individual installations will be able to use external credits to comply with the ETS, expressed in x% of initially allocated allowances for that installation. On the other hand, more importantly, there is a qualitative limit as credits from sink projects have been excluded from the Linking Directive as they are not eligible as generators of credits in the ETS. Yet, this exclusion is valid for the period 2005-7, and there are positive signals that this position could change as the Commission Review of the EU ETS scheduled for June 2006 might open the door to robust sinks schemes. Still, the extension of the EU ETS to cover the additional sectors of agriculture and forestry is currently not envisaged due to the high transaction costs that such a system would imply. In the longer term, however, such an extension could become a viable way to further increase the cost-effectiveness of the currently most important climate policy instrument in the EU, the EU ETS.

3.3. Other important policy measures to achieve the Kyoto target

In addition to a series of domestic actions at Member State level, the ECCP has introduced a comprehensive package of policy and legislative measures at the EU level to achieve compliance with the Kyoto target. The ECCP reaches out to a wide range of sectors of the economy, defining policy relevant to the household, industrial, commercial and transport sectors. Besides the EU ETS and the related Linking Directive discussed above, let us now briefly summarise the most important measures for European climate policy that could have implications for agriculture and forestry (triggered by the Kyoto Protocol)[10]:

- Mechanism for monitoring greenhouse gas emissions and implementing the Kyoto Protocol in the EU (Decision 280/2004/EC): This mechanism, in force in Member States since 2004, replaces the 1993 mechanism, for monitoring and reporting GHG emissions and removals by sinks in the EU. It allows to evaluate progress accurately and regularly and to comply with the requirements under the UNFCCC and the Kyoto Protocol.
- The Renewable Electricity Directive (Directive 2001/77/EC) requires Member States to promote electricity produced from non-fossil renewable energy sources with an indicative target to increase the proportion of the EU-25's electricity supplied by renewable sources to 21% in 2010 (14% in 1997). Specific indicative targets are imposed for each Member State, and implementation of this Directive was due by October 2003.
- The Biofuels Directive (Directive2003/30/EC) requires Member States to promote bio-fuels (liquid or gaseous fuels used for transport and produced from biomass) with an indicative target to be reached by 2010 of 5.75% of the share of fuels sold. Implementation in Member States was due by December 2004. In order to ease the way towards the target, the European Commission has adopted an EU Strategy for Biofuels[11].

[10] For a detailed discussion of the policies and measures adopted by the European Commission to comply with the Kyoto target see EC (2005) COM (2005) 615. Several of the policies have also been discussed in FEEM's "The Kyoto Protocol Current State and Implications for EU 25 Member Countries. A Focus on Agriculture and Forestry" by F. Bosello, B. Buchner, J. Crimi, C. Giupponi and A. Povellato.

[11] See http://europa.eu.int/comm/agriculture/biomass/biofuel/com2006_34_en.pdf The strategy is structured along seven policy axes: stimulating demand for biofuels, capturing environmental benefits, developing the production and distribution of biofuels, expanding feedstock supplies, enhancing trade opportunities, supporting developing countries and supporting research and development.

- The "Intelligent Energy for Europe" programme (Decision 1230/2003/EC), a funding scheme with a budget of € 250 million for 2003-2006, promotes intelligent energy use and more renewable sources of energy. In particular, it supports sustainable development in an energy context encouraging improvements in energy efficiency, the generation of renewable energy, the reduction of carbon dioxide emissions from the transport sector as well as the promotion of renewable energy sources and energy efficiency in developing countries.
- Inclusion of energy efficiency requirements and emission reduction requirements in the permit system for industrial and agricultural installations (Directive 96/61/EC) in order comply with the 1996 Directive on Integrated Pollution Prevention and Control (IPPC), according to which major polluting industrial and agricultural installations in the EU (45,000 installations in the EU-15) must obtain a permit – based on the concept of Best Available Techniques (BAT) – from their national authorities to be allowed to operate. BAT is provided in sectoral BAT reference documents, which are agreed in a process involving all stakeholders and then adopted by the Commission. In order to further improve energy efficiency and reduce emissions, a 'horizontal' BAT reference document on energy efficiency is currently in preparation. In addition, authorities issuing permits to the installations falling under the scope of the Directive can impose GHG emission limits, except for those installations covered by the EU emissions trading scheme. New installations have been obliged to comply with IPPC permits since October 1999; existing installations must be brought into conformity by October 2007.
- The Landfill of Waste Directive (Directive 1999/31/EC) will reduce the amount of waste sent to landfill and the production of methane associated with its decomposition[12]. In particular, it requires Member States to reduce the amount of biodegradable waste that they landfill to 75% of the 1995 level by 2010, 50% of the 1995 level by 2013 and 35% of the 1995 level by 2020. Implementation in Member States was due by July 2001.
- Integration of climate change into the EU's Rural Development Policy as a part of the EU's Common Agricultural Policy with a budget of around € 7 billion per year for 2000-2006. This measure aims to strengthen the agriculture and forestry sectors, to improve the competitive position of rural areas and to help safeguard the environment. Co-financing is available for over 20 measures that include environmentally-friendly farming and investment in forests to improve their ecological value, which clearly is relevant for the climate system. The Commission has proposed a similar budget for 2007-2013, with a stronger focus on the environmental aspect, declaring improvement of the environment and the countryside through land management one of the main objectives and requiring Member States to spend at least 25% of the rural development funds on this priority. Particular attention is given to the carbon sequestration potential of afforestation and reforestation measures. The measure is operational for 2000-2006 and in adoption procedure for 2007-2013.
- Support scheme for energy crops under the EU's Common Agricultural Policy (Regulation 795/2004/EC) which makes available € 45 per hectare in aid to producers of energy crop, i.e. crops intended for the production of biofuels or electric and thermal energy. The measure is operational since 2003.
- The Nitrates Directive (Directive 91/676/EEC) prevents amongst others water pollution caused by nitrous oxide (N_2O), stemming from the N_2O in soils caused through the excessive use of agricultural fertilisers and from agricultural waste. The reduction of N_2O in soils benefits the climate system since N_2O is a powerful greenhouse gas. The upcoming

[12] Biodegradable waste produces methane emissions, which currently account for around 8% of EU GHG emissions.

'thematic' long-term strategy on soil will put an emphasis on preventing soil contamination by nitrates, while the 'thematic' strategy on pesticides will promote low-input farming, both of which will benefit the climate system. The implementation of the Nitrates Directive in Member States was due by December 1993, whereas the strategy on soil was to be presented in November 2005 and the one on pesticides to be presented in the first half of 2006.

In addition, measures to promote the use of heat from renewable energy sources - e.g. biomass, solar systems and geothermal sources - are currently in preparation. They include a Biomass Action Plan to increase total biomass production in the EU for energy purposes (European Commission, 2005c)[13]. In order to shed more light on the potential of biomass, the European Environment Agency (EEA) has recently assessed how much biomass can be used for climate-friendly energy generation without causing additional environmental pressures, such as on biodiversity, soil and water resources. Preliminary results suggest that there is sufficient biomass potential in the EU-25 to help reduce GHGs and support ambitious renewable energy targets in an environmentally responsible way. However, EEA (2005) emphasises that achieving maximum gains and minimising the potential threat of bioenergy production requires careful planning from EU to local level and that further clarification on relevant socio-economic and logistical aspects is required.

Furthermore, in 2006 a review and possible revision of the Biofuels Directive is foreseen. In this context, follow-up work also includes a proposal for the revision of the Fuel Quality Directive; and a review of the implementation of the energy crop premium introduced by the 2003 CAP reform. The Community Tax Framework (Council Directive 2003/96/EC) further backs several of the previously discussed directives by encouraging the more efficient use of energy and enabling the adoption of tax measures directed at CO2 emissions. Furthermore, a number of policies and measures targeting the energy demand and transport are operational, helping thereby to draw attention to more efficient energy performances and stimulating new focuses e.g. renewable sources of energy. In this context, the measures related to the field of research and development are important, particularly the 6th EU RTD Framework Programme (2002-2006) as this provides more than € 3 billions for developing and demonstrating new technologies related to energy, transport and environment.[14]

4. Some brief conclusions

2005 has been an important year for moving climate policy forward. The Kyoto Protocol has come into force, and the climate talks in Montreal have actually made it operational, as well as launching a process for post-2012 negotiations. Even though the future of international climate policy is still characterised by uncertainty, several decisions have been taken that render the current policy framework more effective. Above all, the Clean Development Mechanisms has been strengthened and streamlined, in an attempt to find a balance between the requirements of having more projects and at the same time keeping the environmental integrity high. Agriculture and forestry are among the sectors that are expected to play a larger role in the next phase of CDM projects.

[13] For more information see http://europa.eu.int/comm/energy/res/biomass_action_plan/index_en.htm

[14] Further key measures of the EU's climate policy include the Energy Performance of Buildings Directive, which requires Member States to adopt energy performance standards and will introduce energy labelling of buildings across the EU, along with a requirement to evaluate the opportunities for installing renewable energy systems in buildings above a certain size; the Cogeneration Directive that aims to provide incentives for the development of cogeneration; a voluntary commitment by car manufacturer associations to improve CO_2 efficiency of new cars by 25% in 2008/2009 with respect to 1995; the Energy Using Products (EUP) Directive to provide minimum performance standards for many energy-using products and the End-use efficiency and Energy Services Directive; and a regulation on fluorinated gases and a Directive on fluorinated gases in automotive air conditioning systems are still in the legislative process.

In addition, several indications for Europe's future climate policy are already visible. Most importantly, there is an emphasis that the EU's climate policy will go beyond 2012. Many of the EU policies that are already in place will have an important impact beyond the Kyoto Protocol's first commitment period, as does also the link between the CAP and environmental objectives. A crucial role in the future of EU's climate policy will be played by the EU ETS. The scheme will automatically continue after 2012, as has also been emphasised by EC officials at the Montreal talks. This fact also provides some certainty to the broader climate policy framework, particularly with regard to the continued importance of the CDM as demand via the Linking Directive is ensured. In the longer run, an extension of the scheme to include further sectors and gases is envisaged, and agriculture and forestry could contribute to increase the flexibility and the cost-effectiveness of the European climate policy. Furthermore, the second phase of the European Climate Change Programme is expected to include several other components important for the role of agriculture and forestry in the context of climate change control, such as carbon capture and storage, emissions from road vehicles, aviation and strategies to adapt to the effects of climate change (EC 2005). The role of the EU in reducing vulnerability to climate change and promoting adaptation will also be explored, and further policy initiatives in the field of energy efficiency and renewable energy are foreseen, putting again more weight on agriculture and forestry. Finally, the 7^{th} RTD framework programme along with the established and new Technology Platforms is expected to provide the means for a long-term shift to a CO_2 free economy. The potential of forestry and agriculture as efficient renewables, as well as hydrogen and fuel cells and zero emission fossil fuel power generation will all be examined.

In summary, the credits arising from Clean Development Mechanism (CDM) and Joint Implementation (JI) projects are essential to ensure compliance of the Kyoto countries as well as for European companies both in the current and the next phase of the EU emissions trading scheme to ensure compliance with the EU ETS at lowest possible abatement costs. The extension of the currently covered sectors, via an extended Linking Directive and new methodologies, is therefore important to increase the flexibility of the policy and thereby its cost-effectiveness. As indicated throughout the analysis, both options are under discussion in the climate policy arena, where the importance of forestry and agriculture has increased considerably during the last year, both on a global and a European scale. The next ten months, comprising the EU ETS review, more detailed signals regarding ECCP II and real consequences of the COP/MOP 1's CDM decisions, will shed more light on the actual contribution agriculture and forestry can provide to climate change control.

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GLOSSARY

AAU	**A**ssigned **A**mount **U**nit. Units issued out of a country's initial assigned amount.
Annex I	Industrialised countries that, as parties to the UNFCCC, have pledged to reduce their greenhouse gas emissions by the year 2000 to 1990 levels as per Article 4.2 of the Kyoto Protocol are listed in Annex I. Annex I Parties consist of countries belonging to the OECD, the Economies-in-Transition and Turkey.
AP6	**A**sia **P**acific **P**artnership on **C**lean **D**evelopment and **C**limate. Technology-based partnership among the US, Australia, Japan, China, India and South Korea to reduce GHG emissions without legally binding emissions targets.
BAT	**B**est **A**vailable **T**echniques.
BAU	**B**usiness **a**s **U**sual.
CDM	**C**lean **D**evelopment **M**echanism. Project-based Kyoto Protocol flexibility mechanisms between developed and developing countries. Allows for the acquisition and transfer of certified emission reductions.
CCS	**C**arbon **c**apture and **s**torage. The uptake and storage of carbon. Trees and plants, for example, absorb carbon dioxide, release the oxygen and store the carbon.
CERs	**C**ertified **E**mission **R**eduction**s**. Represent units derived from a Clean Development Mechanism project, issued by the CDM registry, and designated as certified emission reduction units by the CDM registry.
CO_2	Carbon dioxide: The main greenhouse gas affected directly by human activities.
CO_2eq	Carbon dioxide equivalent. The concentration of CO_2 that would cause the same amount of radiative forcing as the given mixture of CO_2 and other greenhouse gases.
COP	**C**onference **o**f the **P**arties to the UNFCCC: The supreme body of the UNFCCC (e.g., COP 11 stands for "Eleventh Conference of the Parties").
ECCP	**E**uropean **C**limate **C**hange **P**rogramme. Framework for European climate policy.
ERU	**E**mission **R**eduction **U**nit. Unit derived from a Joint Implementation project issued by converting an Assigned Amount Unit or a removal unit.
ETS	**E**mission **T**rading **S**cheme. Annex 1 countries are allowed to sell emission reductions if in excess respect to their individual targets or symmetrically to purchase them if in shortage.

EUA	**EU**ropean **A**llowances. Other name for emission rights in the European Emission Trading Scheme.
GEF	**G**lobal **E**nvironment **F**acility.
GHG	**G**reen**h**ouse **g**as: Any trace gas that does not absorb incoming solar radiation but does absorb long-wavelength radiation emitted or reflected from the Earth's surface. The most important greenhouse gases are water vapour, carbon dioxide, nitrous oxide, methane and Chlorofluorocarbons (CFC's).
IPCC	**I**ntergovernmental **P**anel on **C**limate **C**hange: The body responsible for the scientific and technical assessment underlying the UNFCCC.
JI	**J**oint **I**mplementation. Project-based Kyoto Protocol flexibility mechanisms between Annex1 countries. Allows for the acquisition and transfer of emission reduction units.
lCERs	**l**ong-term **C**ertified **E**mission **R**eduction**s**. Valid for the full project crediting period.
LULUCF	**L**and **U**se, **L**and-**U**se **C**hange and **F**orestry: Art. 3.3. of the Kyoto Protocol describes land use, land use change and forestry activities that require or allow the net GHG emissions from sinks to be accounted for by Parties in meeting their emission targets.
MOP	**M**eeting **o**f the **P**arties to the Kyoto Protocol
NAPS	**N**ational **A**llocation **P**lan**S**. Plans according to which national governments allocate emission rights to different sectors in view of the mandatory cap-and-trade scheme for CO2 that started in the EU in January 2005.
Non-Annex I country	All countries that do not belong to Annex I of the UNFCCC, i.e. the developing countries and some countries in transition.
tCERs	**t**emporary **C**ertified **E**mission **R**eduction**s**. Valid for just one commitment period.
RMU	**Rem**oval **U**nit. Represents sinks credits generated in Annex I countries, which can be used only to meet a party's emissions target in the commitment period in which they are generated.
7th RTD framework	**R**esearch and **T**echnological **D**evelopment. EU Seventh Research Framework Programme, to last from 2007 to 2013.
SBSTA	**S**ubsidiary **B**ody for **S**cientific and **T**echnological **A**dvice
UNFCCC	**U**nited **N**ations **F**ramework **C**onvention on **C**limate **C**hange: a multi-lateral agreement that lays the basis for international climate negotiations.