



SUMMARY OF THE WORKSHOP ON LAND USE, LAND-USE CHANGE AND FORESTRY: 10-13 JULY 2000

One hundred twenty-one representatives of governments, inter-governmental organizations, non-governmental organizations (NGOs), business and industry groups and academic institutions attended the workshop on land use, land-use change and forestry (LULUCF), which met from 10-13 July 2000 at the International Fair Center in Poznań, Poland. This workshop was organized by the Secretariat of the United Nations Framework Convention on Climate Change (FCCC) in response to a request by the FCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA) at its tenth session, held in June 1999. The SBSTA requested that a workshop be held between SBSTA-12 and the Sixth Conference of the Parties (COP-6) to analyze the Special Report on LULUCF prepared by the Intergovernmental Panel on Climate Change (IPCC). The Special Report provides Parties with scientific and technical information relating to LULUCF and relevant articles of the Kyoto Protocol.

Workshop participants heard presentations by lead authors of the Special Report on LULUCF, as well as by Parties, NGOs, intergovernmental organizations, and business and industry groups. They also engaged in question-and-answer sessions on these presentations and in-depth discussions on key issues raised. The topics addressed during the workshop were: afforestation, reforestation and deforestation under Article 3.3 of the Kyoto Protocol; additional human-induced activities under Article 3.4 of the Protocol; project-based LULUCF activities; general accounting, verification and reporting issues; and linkages with other articles of the Protocol.

Although there was no official outcome document, the workshop provided a forum to consider in-depth LULUCF issues in light of the IPCC Special Report. This could assist Parties in elaborating their positions in submissions on LULUCF under the Protocol, which are due by 1 August 2000, as requested by COP-5. Both the workshop and these submissions will provide input for negotiations on these issues at the thirteenth sessions of the FCCC subsidiary bodies (SB-13) in September 2000 and at COP-6, which will be held in The Hague from 13-24 November 2000. A draft decision on LULUCF under the Protocol is scheduled to be developed at COP-6 and to be adopted by the Conference of Parties serving as the first Meeting of the Parties to

the Protocol (COP/MOP-1). The LULUCF workshop was followed by a field trip programme for participants on 14 and 15 July, including visits to four LULUCF-relevant sites in Poland.

A BRIEF HISTORY OF THE FCCC AND THE KYOTO PROTOCOL

The FCCC was adopted on 9 May 1992 and opened for signature at the UN Conference on Environment and Development in June 1992. It entered into force on 21 March 1994, 90 days after receipt of the 50th ratification. To date, it has received 184 instruments of ratification, acceptance, approval or accession.

COP-1: The first Conference of the Parties to the FCCC (COP-1) took place in Berlin from 28 March - 7 April 1995. In addition to addressing issues related to the future of the FCCC, delegates reached agreement on the adequacy of commitments and adopted the "Berlin Mandate." Delegates agreed to establish an open-ended *Ad Hoc* Group on the Berlin Mandate (AGBM) to begin a process toward identifying appropriate action for the period beyond 2000, including the strengthening of Annex I Parties' (developed country Parties and Parties with economies in transition) commitments through the adoption of a

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protocol or another legal instrument. COP-1 also requested the Secretariat to make arrangements for sessions of the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI). SBSTA serves as the link between the information provided by competent international bodies and the policy-oriented needs of the COP. SBI was created to develop recommendations to assist the COP in the review and assessment of FCCC implementation and in the preparation and implementation of its decisions.

AD HOC GROUP ON THE BERLIN MANDATE: The AGBM met eight times between August 1995 and COP-3 in December 1997. During the first three sessions, delegates focused on analyzing and assessing what the possible policies and measures to strengthen the commitments of Annex I Parties could be, how Annex I countries might distribute or share new commitments, and whether commitments should take the form of an amendment or a protocol. AGBM-4, which coincided with COP-2 in Geneva in July 1996, completed its analysis of the likely elements of a protocol. At AGBM-5, in December 1996, delegates recognized the need to decide whether to permit Annex I Parties to use mechanisms that would give them flexibility in meeting their quantified emissions limitation and reduction objectives (QELROs).

As the protocol was drafted during the sixth and seventh sessions of the AGBM, in March and August 1997, delegates streamlined a framework compilation text by merging or eliminating some overlapping provisions. Much of the discussion centered on a proposal from the EU for a 15% cut in a basket of three greenhouse gases by the year 2010 compared to 1990 emissions levels. In October 1997, as AGBM-8 began, US President Bill Clinton called for "meaningful participation" by developing countries in the negotiating position he announced in Washington. In response, the G-77/China distanced itself from attempts to draw developing countries into agreeing to new commitments.

COP-3: The Third Conference of the Parties (COP-3) was held from 1-11 December 1997 in Kyoto, Japan. Following intense formal and informal negotiations, Parties to the FCCC adopted the Kyoto Protocol on 11 December 1997.

In the Protocol, Annex I Parties to the FCCC agreed to commitments with a view to reducing their overall emissions of six GHGs by at least 5% below 1990 levels between 2008 and 2012. The Protocol also established emissions trading, Joint Implementation (JI) between developed countries, and a Clean Development Mechanism (CDM) to encourage joint emissions reduction projects between developed and developing countries. To date, 22 Parties have ratified the Protocol. The Protocol will enter into force 90 days after it is ratified by 55 Parties to the FCCC, including Annex I Parties representing at least 55% of the total carbon dioxide (CO₂) emissions for 1990.

COP-4: The Fourth Conference of the Parties (COP-4) was held from 2-13 November 1998 in Buenos Aires, Argentina. Following high-level closed door negotiations, delegates adopted the Buenos Aires Plan of Action (BAPA). The BAPA contains the Parties' resolution to demonstrate substantial progress on: the financial mechanism; the development and transfer of technology; the implementation of FCCC Article 4.8 and 4.9, as well as Protocol Articles 2.3 and 3.14 (adverse effects); activities implemented jointly (AIJ); the mechanisms of the Protocol; and the preparations for the first Conference of the Parties serving as the Meeting of the Parties to the Protocol (COP/MOP-1).

COP-5: The Fifth Conference of the Parties met in Bonn, Germany, from 25 October - 5 November 1999. COP-5 adopted 32 draft decisions and conclusions on, *inter alia*, the review of the implementation of commitments and other FCCC provisions, and preparations for COP/MOP-1.

On LULUCF, COP-5 adopted a draft decision endorsing a work programme and elements of a decision-making framework to address the issue with a view to COP-6 recommending that COP/MOP-1 adopt decisions on Protocol Article 3.3 (net changes in emissions and removals by sinks from afforestation, reforestation and deforestation) and 3.4 (additional human-induced activities relating to changes in emissions and removals). The work programme called for, *inter alia*, submissions from Parties by 1 August 2000 that include views or proposals that address methodologies and definitions relating to activities under Article 3.3 and additional human-induced activities to be included under Article 3.4. In addition, the work programme called on Annex I Parties to submit preliminary data to establish levels of carbon stocks in 1990.

SB-12: The twelfth sessions of the subsidiary bodies (SB-12) of the FCCC were held from 12-16 June 2000 in Bonn, Germany, preceded by one week of informal meetings. Delegates continued to work toward fulfilling the BAPA by focusing on a range of technical and political issues aimed at laying the foundation for negotiations on a comprehensive agreement to be completed at COP-6. They adopted 21 draft conclusions on various issues, including policies and measures, LULUCF, guidelines under Articles 5 (methodological issues), 7 (communication of information) and 8 (review of information) of the Protocol, technology transfer, and mechanisms. SB-12 also adopted the Report of the Joint Working Group on Compliance.

Regarding LULUCF, participants at SB-12 received an in-depth briefing on the new Special Report of the Intergovernmental Panel on Climate Change (IPCC), which had been developed following a request at SBSTA-8 in June 1998 to produce a scientific and technical report on this topic. In addition, SBSTA-12 adopted conclusions that, *inter alia*: requested indication of how the additional activities proposed by Parties in their submissions, due on 1 August 2000, relate to the objectives and principles of the FCCC and Protocol; agreed to a data reporting format for Parties' 1 August submissions and decided to consider this data at SBSTA-13; requested Parties to provide textual proposals on Article 3.3 and 3.4; and asked the SBSTA Chair, with the FCCC Secretariat, to prepare a synthesis of textual proposals from Parties' 1 August submissions.

REPORT OF THE WORKSHOP

SBSTA Chair Harald Dovland (Norway) opened the workshop on Monday, 10 July, and welcomed participants. He said the new IPCC Special Report on LULUCF marks a watershed in work on this issue and provides a strong scientific basis for decisions on the various policy options available. He noted the upcoming 1 August deadline for the submission of proposals and information on activities related to Article 3.3 (net changes in emissions and removals by sinks from afforestation, reforestation and deforestation) and 3.4 (additional human-induced activities relating to changes in emissions and removals) of the Kyoto Protocol. Noting that COP-6 was rapidly approaching, he informed participants that consultations on LULUCF have been tentatively scheduled for the second week of October.



Antoni Tokarczuk, Minister of the Environment of Poland, noted that this workshop was being held in response to a request by SBSTA to analyze the IPCC Special Report in the context of the requirements of Protocol Article 3.3 and 3.4. He stressed the importance of wise land use and forestry policies in addressing climate change concerns and outlined elements of Poland's National Sustainable Forestry Policy, including: conservation of existing forest areas; promotion of natural forest regeneration; and reduction of clear-cutting. Stating that LULUCF is one of the most important issues addressed by the Protocol, he urged participants to work to achieve "concrete results" that could support the Protocol's entry into force in 2002.

COP-5 President Jan Szyszko (Poland) stressed the opportunity this workshop provides to make progress on LULUCF. He noted the carbon storage, biodiversity, socio-economic and other benefits of sound forestry policy.

The Co-Chairs of the workshop, Halldor Thorgeirsson (Iceland) and Philip Gwage (Uganda), introduced the agenda for the meeting. Co-Chair Thorgeirsson noted concerns expressed by a number of Parties on the agenda items relating to discussion of possible elements of decisions. He stressed that this workshop was not a forum for negotiating outcomes.

AFFORESTATION, REFORESTATION AND DEFORESTATION UNDER ARTICLE 3.3

On Monday, 10 July, the workshop considered afforestation, reforestation and deforestation (ARD) under Article 3.3 of the Kyoto Protocol. Participants heard presentations from lead authors of the IPCC Special Report on LULUCF, as well as speeches by representatives of five country Parties. These presentations were followed by a general discussion on the issue.

IPCC OVERVIEW: IPCC Chair Bob Watson highlighted key issues for decisions, including:

- defining a forest, including whether to use single or multiple thresholds of canopy cover;
- addressing aggradation and degradation of forested land;
- excluding or including the harvest-regeneration cycle and the problem of accurately reflecting within the accounting system the corresponding actual changes in carbon dioxide in the atmosphere;
- addressing the question of permanence of carbon sequestered in the biosphere and the risk of reversibility of such sequestration;
- differentiating between direct and indirect human-induced activities that increase carbon stocks;
- identifying which carbon pools to monitor, including issues related to costs, the need for precision and technical feasibility, and monitoring of project-based activities; and
- addressing incentives and disincentives for carbon sequestration between 1990 and the beginning of the first commitment period in 2008.

He illustrated the potential size of ARD activities in Annex I countries and globally under different accounting approaches and based on different options for the definition of a forest.

Bernard Schlamadinger, IPCC/Joanneum Research, Austria, provided an overview of ARD issues under the IPCC Special Report, focusing on the harvest-regeneration cycle, aggradation/degradation and the limit of forest-nonforest conversions. He said that, under the IPCC definitional scenario, ARD activities are based on transitions between forest and non-forest uses. Under the FAO definitional

scenarios, the harvest-regeneration cycle is included and aggradation/degradation can be included under ARD activities, although this requires multiple thresholds in the definition of a forest. He demonstrated the implications of definitional and accounting options and noted that the accounted stock change would generally be different from the actual stock change during a commitment period, which would lead to artificial credits and debits. He concluded that the IPCC definitional scenario provided the highest consistency between reported and actual changes in carbon stocks on land under ARD activities, noting that this scenario was likely to result in debits in Annex I Parties overall, and that aggradation/degradation would be easier to cover under Article 3.4 than under Article 3.3.

PARTY PRESENTATIONS: Michael Gytarsky, Senior Scientist, Institute of Global Climate and Ecology of the Federal Service of Russia for Hydrometeorology and Environmental Monitoring and Russian Academy of Sciences, discussed definitions of ARD within the framework of Article 3.3 and 3.4 of the Protocol. He suggested that these definitions be extended to include various human activities aimed at reducing greenhouse gas emissions and increasing sinks. He suggested considering the inclusion of fire prevention as a human-induced activity under Article 3.4.

Klas Österberg, Principal Technical Officer, Swedish Environmental Protection Agency, discussed Swedish carbon budgets in relation to the Protocol. He outlined calculations on above-ground biomass carbon and emphasized that Article 3.3 would not benefit Sweden due to implications of the harvest-regeneration cycle. He said slow growth in early rotation cannot compensate for carbon in harvested wood, and could instead create a significant carbon debit.

Yuji Kimura, Office of Research and Information, Environment Agency of Japan, addressed ARD under Protocol Article 3.3. He suggested that the selection of a definition and accounting framework for Article 3.3 activities should include incentives to promote sinks activities. He said the definition and accounting framework should encourage carbon sequestration in the harvesting-regeneration cycle in Annex I countries where it is a key factor. He supported the FAO activity-based accounting method, stating it could promote appropriate harvesting and regeneration.

Yeshey Penjor, National Greenhouse Gas Project Manager, National Environmental Commission of Bhutan, discussed LULUCF in a national context. He defined land-use planning as a means of supporting farmers and rural communities dependent on natural resources to increase their standard of living in an environmentally sustainable manner.

Kazimierz Rykowski, Professor of Forestry, Polish Forest Research Institute, highlighted the importance of developing a set of definitions and accounting procedures, as well as a measuring and monitoring system. Noting difficulties in reaching agreement on the definition of a forest, he suggested focusing instead on seeking definitions and descriptions of ARD and "forestry activities." While agreeing with the IPCC's Special Report that afforestation and reforestation should be classified as forestry activities, he said deforestation should not be, as it does not take place within forest management.

DISCUSSION: In the ensuing discussion, France, speaking on behalf of the EU, said its position is still being developed. However, he highlighted the Council of Ministers' Decision of 23 June 2000, which notes that, *inter alia*: the inclusion of sinks should not undermine the incentives for emissions reductions or biodiversity conservation; a decision on inclusion of further activities under Article 3.4 should not



apply until after the first commitment period, unless concerns relating to scale, uncertainty and risks are resolved; sinks should not be included under the CDM; and decisions should be consistent with sustainable forest management.

The UK called for a simple, environmentally-defensible framework for decisions and accounting approaches. WWF addressed the issue of control of forest fires, and questioned how a baseline could be established. On using a Leaf Area Index as a method for measuring carbon stocks, Robert Watson suggested that this was not a particularly useful approach.

On the definition of a forest, Finland supported using existing FAO definitions, with which countries are already familiar. Bolivia stressed that adopting a simple, single threshold definition of a forest would result in a loss of accuracy and said the approach needs improvement. Japan stressed the inclusion of the harvesting-regeneration cycle under Article 3.3 to provide incentives to fully utilize sinks, especially in countries with little opportunity for increasing forested areas. Norway opposed this suggestion, stressing the need to keep accounting simple. He supported the IPCC framework, but underscored the need to address the problem of increases in carbon stocks in boreal forests generating debits under the accounting framework.

On ARD and forests, Australia suggested including Article 3.3 and 3.4 within a single framework, supported by ARD definitions. He noted the differences between afforestation, reforestation and deforestation, highlighting that deforestation needs an accounting framework that ensures that the extent of land-use change is monitored. FAO emphasized the dynamism of forestry definitions and acknowledged that current FAO definitions may not fully meet the needs of carbon accounting. He said FAO will continue revisiting the question of definitions and will seek input and suggestions. Tuvalu, on behalf of the Alliance of Small Island States (AOSIS), suggested considering not only ecosystem accounting but also transactional accounting. He also highlighted the Parties' varying levels of technical capability to undertake accounting measurements.

On transparency, Germany emphasized the importance of a transparent accounting system that allows those outside of the Expert Review Teams to have access to areas that have been afforested.

Several delegates addressed the issue of potential discrimination or loopholes relating to credits and debits due to discrepancies between the timing of the first commitment period and the requirement under Article 3.3 that Parties consider ARD activities since 1990. Australia and Finland proposed that sub-rules or exclusions could be developed to avoid any unintended consequences – such as potential encouragement of deforestation prior to, rather than during, the first commitment period, in order to avoid debits. AOSIS said the implications of sub-rules would need to be considered. He stressed that commitment periods should run contiguously, and said policymakers should take a longer-term perspective that accounts for the fact that disadvantages accrued during the first commitment period would be likely to disappear in the second or third period, depending on the length of the forestry rotation period. Workshop Co-Chair Thorgeirsson said exceptions or sub-rules should focus on the time prior to the first commitment period, and agreed with participants' comments that commitment periods should be contiguous.

On inclusion of non-CO₂ greenhouse gases, Finland stressed that not enough was known of the balances in activities under Article 3.3 for a well-informed decision to be made. Emphasizing the need for simplicity, the UK and Japan argued against inclusion of non-CO₂

greenhouse gases. Australia, with the Netherlands, supported including all greenhouse gases, adding that the intent behind Article 3.3 was not to focus solely on CO₂. He highlighted the risk of unintended effects if a comprehensive approach is not taken, citing the case of applying fertilizers to enhance CO₂ uptake and unintentionally increasing N₂O emissions. Ireland said including all greenhouse gases was a reasonable proposal, but cautioned that methodological issues would need to be resolved.

The US said activities under Article 3.4 could be used to address limitations in activities under Article 3.3. She said harvested wood products should be included as a managed pool within the accounting framework. She highlighted the idea that definitions could vary by Party, involving a review process to ensure technical credibility and consistency over time. On the definition of a forest, she said the FAO definitions have not been adopted for carbon accounting and need to be considered more carefully. She preferred definitions to be made at the individual Party level. She questioned the role of sub-rules and whether their purpose was to provide incentives for future behavior or penalize and reward past behavior.

On soil carbon, AOSIS said presentations had addressed above-ground carbon stocks, but noted that they had not necessarily taken below-ground carbon stocks into consideration. Germany, opposed by Japan, supported the inclusion of soil carbon under Article 3.3, saying it would give incentives for sustainable management. He also cautioned against credits for carbon that has not been genuinely accumulated. The UK said accounting procedures should be clear and simple and not too detailed.

ADDITIONAL HUMAN-INDUCED ACTIVITIES UNDER ARTICLE 3.4

On Tuesday, 11 July, participants met in morning and afternoon sessions to consider additional human-induced activities under Article 3.4 of the Kyoto Protocol. Lead authors of the IPCC Special Report presented an overview of the Special Report's coverage of this issue, followed by a question-and-answer session. In addition, representatives of five Parties and one NGO made presentations, also followed by a question-and-answer session. Participants then engaged in a general discussion on the issue.

IPCC OVERVIEW: IPCC Chair Bob Watson outlined key elements requiring decisions relating to Article 3.4 (additional human-induced activities relating to changes in emissions removals), including which activities to include, if any, and whether a Party should be obliged to report on the entire set of selected activities. He then identified several key issues under Article 3.4, including:

- whether to adopt a broad or narrow definition of an activity; how much land will need to be monitored, including cost;
- how to address the issue of baselines;
- what the implications are of potential “windfalls” due to increases in carbon resulting from natural effects and indirect human-induced activities such as CO₂ fertilization, nitrogen deposition, and effects of climate change;
- what ancillary benefits exist; and
- how to resolve permanence issues.

Ian Noble, IPCC Special Report Lead Author, Australian National University, outlined options for the definition of an activity. He said a broad definition would provide a more simplistic approach covering all practices on an area of land, while a narrow definition – based on individual practices – would permit greater accuracy. He suggested



that a broad definition would be more compatible with land-based accounting, while a narrow definition would better suit activity-based accounting, although any combination could be made to work. He then discussed “scientific baselines,” noting the need to account for the human-induced element. He concluded by elaborating opportunities or “potentials” under Article 3.4, identifying groups of activities relating to improved management and land-use change. He said estimates suggested that forest, cropland and grazing management could have significant benefits for Annex I Parties, while transforming degraded agricultural land to agroforestry could particularly benefit non-Annex I Parties.

QUESTION-AND-ANSWER SESSION: In the subsequent question-and-answer session on the IPCC overview, AOSIS queried whether identifying specific “potentials” was appropriate at this stage. The UK noted that the scientific baseline was not a baseline as it is regularly understood. He stressed the importance of separating human-induced effects from natural causes under Article 3.4. Replying to concerns raised by China over conflicting land-use priorities, Ian Noble said changes from current agricultural practices to agroforestry should be carefully designed to ensure overall benefits to the population, and said agroforestry should not be practiced on prime agricultural land.

On questions relating to monitoring and verification, Noble acknowledged the high costs involved and raised the need for a discussion on costs and benefits. On verification, he commented that there should be mechanisms in place, such as spot checks and checking of documentary evidence, coupled with indirect verification through academic scientific papers.

On carbon crediting, the European Commission highlighted social and environmental baselines, emphasizing the Protocol’s sustainable development goals.

PARTY PRESENTATIONS: David Boulter, Senior Climate Change Advisor, Canadian Forest Service, provided a national perspective of forest management under the Protocol. He suggested that sustainable forest management would be a cost-effective sink opportunity for Parties to fulfill their emissions targets and should be included under Article 3.4.

Andres Arnalds, Deputy Director, Iceland’s Soil Conservation Service, discussed carbon sequestration by revegetation. He emphasized that degradation is a global phenomenon and highlighted the multiple benefits of revegetation, including wide-ranging socio-economic benefits and the encouragement of non-forest species.

Adele Morris, Special Advisor, US State Department, presented a national perspective on the LULUCF long-term approach and phase-in for the first commitment period. She suggested LULUCF objectives should include: linking Article 3.3 as a package with Article 3.4; incorporating a long-term system; assisting Parties to meet Kyoto targets cost-effectively; and considering a phase-in approach to address first commitment period issues. She proposed moving toward a system of complete greenhouse gas accounting on all managed lands and emphasized that Article 3.4 activities should be broadly defined and take a comprehensive approach. She suggested a phase-in option to full accounting for the first commitment period, including: adjusting assigned amounts by including only net removals over a certain threshold; and applying a discount rate to specified accounts before adjusting assigned amounts. She recommended consideration of incentives and ancillary environmental effects in domestic implementation and land conversion accounting.

Konrad Tomaszewski, General Director of State Forests for Poland, discussed the role of State involvement in and ownership of forested areas in addressing climate change concerns. He outlined Poland’s forestry management legislation, principles and activities. He concluded that government involvement in forest management has played a significant role in enhancing carbon storage, including through development of an effective forest fire protection system and a strong afforestation programme.

Lorenzo Ciccarese, Senior Researcher on Climate and Forestry for Italy’s National Environmental Protection Agency, presented Italy’s national experience relevant to Article 3.4, including identification and estimation of relevant changes in the carbon budget. He described work on estimating changes in carbon storage and outlined relevant policies, including: emissions avoidance activities; soil carbon conservation; forest conservation; and forest management and silviculture techniques.

NGO PRESENTATION: Stephan Singer, Head of WWF’s European Climate and Energy Policy Office, discussed Article 3.4 activities and repercussions on the integrity of the Protocol. He said Parties should agree to: prohibit projects and credits without agreed inventories and independent monitoring; address leakage and permanence concerns; and exclude commercial forestry and business-as-usual projects. He expressed concern that industrialized countries might attempt to negotiate an agreement at COP-6 that would effectively allow CO₂ emissions to increase by 25-50%. He drew attention to a report on technical and additional potentials for activities under Article 3.4 relating to sequestration by cropland, rangeland and forest management, which concluded that Article 3.4 activities could create significant new entitlements for countries with large landmasses, as well as the potential for serious loopholes.

QUESTION-AND-ANSWER SESSION: In the ensuing question-and-answer session, a number of participants asked Adele Morris for additional information on the US position. On thresholds, Morris said an option for the phase-in proposal during the first commitment period was to adjust assigned amounts by including only net removals over a set threshold. She suggested that this threshold could vary by Party to fit their specific circumstances. In response to questions from Japan and France on the idea of discount rates, Morris said this related to the phase-in proposal and would involve straightforward percentage discounts for particular accounts – for instance, forest management accounts – before adjusting assigned amounts. AOSIS expressed concern over the degree to which the US position differed from the business-as-usual scenario.

In response to a query relating to WWF’s position on sinks and the CDM, Stephan Singer said a key concern was that domestic action should not be undermined as the primary tool in meeting Protocol commitments.

DISCUSSION: Following these presentations and question-and-answer sessions, delegates discussed key issues relating to Article 3.4. On activities under Article 3.4, Poland said a wide range of activities should be promoted through the framework of sustainable forest management. Finland emphasized the role of biofuels and called for national circumstances to be considered when deciding on additional activities. Emphasizing the importance of carbon in agricultural soils, Canada supported the inclusion of cropland and grassland management and agro-forestry. Uganda stressed that credits should not be awarded for business-as-usual.



Germany, supported by the Netherlands, said activities should not be included under Article 3.4 during the first commitment period unless concerns related to the scale of the use of sinks, scientific uncertainty and risks related to permanence were addressed. He suggested a pilot project period for activities under Article 3.4 to gain a better understanding of them. AOSIS recommended Article 3.3 as the key pilot phase in the first commitment period.

On accounting approaches, Norway supported full carbon accounting that includes soil carbon and non-CO₂ greenhouse gases in the long term. The Netherlands agreed, but called for careful consideration of short-term implications. Canada and Japan supported a broad land-based approach. Australia said its aim was to continue working on a framework approach to accounting, across Article 3.3 and 3.4.

On wood products, Canada and France drew attention to opportunities relating to construction products. Finland noted the environmental soundness of wood products, while observing that discussion on their inclusion is scheduled for 2001.

The US National Association of Regulatory Utility Commissioners supported FAO-based definitions and an accounting framework that reflects land-based human activities.

IPCC Chair Bob Watson summarized key issues emerging from the discussions, which he said included:

- recognition of the difficulty of including aggradation/degradation and the harvest-regeneration cycle under Article 3.3 and implications for the links between Article 3.3 and 3.4;
- the possibility of using a single threshold that could vary between countries and biomes;
- the potential role of wood products under either Article 3.3 or 3.4;
- recognition that the magnitude of a windfall would be very high compared with sequestration achieved through management practices under Article 3.4; and
- an interest in associating sustainable forest management with carbon enhancement.

PROJECT-BASED ACTIVITIES

On Tuesday evening, 11 July, and Wednesday, 12 July, participants considered the issue of project-based LULUCF activities. Lead authors of the IPCC Special Report presented an overview of the Special Report's coverage of this topic, followed by a question-and-answer session. In addition, representatives of seven Parties, five NGOs and two business/industry organizations made presentations, also followed by a question-and-answer session.

IPCC OVERVIEW: IPCC Chair Bob Watson said the first question relating to project-based activities was whether or not to include sinks in the CDM and, if they are included, which ones to allow. Sandra Brown, IPCC Special Report Lead Author, provided information on, *inter alia*:

- development of baselines, which can be project-specific or generic, and fixed or regularly updated;
- leakage, which refers to cases where the benefits of a project are canceled out through the shift of the unwanted activity, such as deforestation, to a site outside the project boundaries;
- approaches to accounting for and mitigation of leakage;
- permanence; and
- measuring, monitoring and verification of selected pools.

Watson noted that these issues must also be addressed in energy projects, while observing that the question of permanence is considered more difficult for LULUCF projects.

QUESTION-AND-ANSWER SESSION: In the ensuing question-and-answer session, the European Commission drew attention to the possibility of leakage having positive effects. In response to a question on leakage by the Netherlands, Sandra Brown highlighted the development of "look-up tables" for leakage covering different types of tree species and based on market supply and demand. The US underscored the distinction between the cost and price of carbon, and said there may be opportunities to sell at a significant profit. Brown noted that currently there is no price for carbon, as there is no market and the only information available relates to investment costs.

In response to a question by the US on baselines, Brown said baselines in some existing projects are now being revisited to update or add field data. She noted that, with an increased number of projects, there will be added incentive and data to develop generic baselines. The Central African Republic queried what could be done to monitor small-scale projects in rural areas. Brown said it was a question of encouraging cooperation at the local level, after which standard statistical sampling could be used. With regard to a possible minimum area size or carbon offset, she said several small projects could be bundled into larger ones.

Finland drew attention to the complexity of the underlying causes of deforestation, highlighting structural and socio-economic factors, and questioned how much a project approach would actually address the wider problem of deforestation. Watson replied that, while it is important to identify the root cause and to change policy and institutional frameworks, projects could be of value and are the only feasible approach under the climate change framework.

In response to a comment by the UK on the possibility of using sectoral baselines, Watson said this could be a viable option, although it required careful consideration. AOSIS highlighted the need for dialogue with indigenous peoples.

PARTY PRESENTATIONS: Joy Grant, Executive Director, Programme for Belize, spoke about the Rio Bravo Carbon Sequestration Project. She outlined the project's history and objectives, including conservation, sustainable forestry, and sustainable development. She outlined the amount of carbon sequestered and discussed the community benefits.

Salah Tahoun, Land Resources Advisor, Egyptian Environmental Affairs Agency, discussed afforestation in Egypt. He highlighted the important commonalities for forestry between the FCCC, the Convention to Combat Desertification (CCD) and the Convention on Biological Diversity (CBD), and called for consideration of overlaps between these conventions.

Alimin Djisbar, National Technical Expert for Forestry, Indonesia, presented the case of afforestation of degraded land in Jambi Province, Sumatra. He spoke about degraded grasslands and the multipurpose use of tree species.

René Yvon Brancart, President of Côte d'Ivoire's National Committee on Climate Change, discussed the development and condition of forests in Côte d'Ivoire. He highlighted the significance of forests for rural livelihoods, particularly in meeting energy needs.

Jesada Luangjame, Researcher, Forest Research Office, Thai Royal Forest Department, spoke about the status of forests and reforestation in Thailand. Highlighting increases in protected areas and reforestation, he said Thailand is striving to manage forests in a sustainable manner with a view to achieving CO₂ benefits.



Sergio Jauregui, Advisor on LULUCF and Climate Change, Bolivian Vice Ministry of Environment, discussed the Noel Kempff Mercado Climate Action Project in Bolivia. He highlighted the two components of emissions reduction: eliminating logging, and eliminating conversion of forest to agricultural land. The project addressed leakage by providing alternative economic opportunities for the affected communities. It also addressed the issue of permanence by: assimilating the area indefinitely into a national park; controlling fires; including local communities in park management; and discouraging migration by providing key infrastructure for the local population.

Ken Andrasko, Office of Atmospheric Programs, US Environmental Protection Agency, outlined US views on project-based LULUCF activities. He noted the importance of LULUCF in the global carbon cycle, the fact that projects could be widely distributed internationally, and the potential for co-benefits that may be larger than the carbon benefit. He argued that the potential problems of additionality over business-as-usual, leakage and permanence should be addressed through appropriate rules and project design.

NGO AND BUSINESS PRESENTATIONS: Mika Coda, Vice President of the Nature Conservancy's Climate Change Programme, speaking on behalf of the Climate Action Network-US, supported inclusion of forest conservation under the CDM, stating that deforestation is a significant source of emissions and projects can provide co-benefits. Outlining proposed rules, he said the small number of possible projects means Annex I countries will still be required to undertake significant domestic emissions reduction measures.

John Kinsman, Manager of Atmospheric Science for Edison Electric Institute, and Gary Kaster, Chair of the Utilitree Carbon Company, outlined US electric utility views on forestry projects. Kinsman provided an overview of experience in forestry-related projects, including issues related to permanence and leakage. Kaster called for, *inter alia*: a comprehensive full carbon accounting system addressing all significant sources and sinks; and forestry projects to be included under the CDM.

Jacob Olander, Fundacion Natura, spoke about the contribution of LULUCF projects under the CDM. Addressing concerns about the CDM, he stressed the need for rules and criteria for all types of projects. He highlighted the importance of, *inter alia*, full and adequate measurement and monitoring of greenhouse gas impacts; strategies to address underlying causes of deforestation and degradation; and mechanisms for avoiding negative impacts and guaranteeing adequate stakeholder participation.

Igino Emmer, Consultant, FACE Foundation, discussed the design and management of reforestation projects, outlining the Foundation's portfolio of reforestation projects to sequester CO₂. He emphasized the benefits of certification and verification of forest management projects and called for development of sound monitoring programmes.

Gareth Phillips, Société Générale de Surveillance (SGS), outlined early experiences with verification of land-based projects. Highlighting the importance of eligibility, he said SGS had developed its own carbon offset verification scheme, including acceptability, additionality, externalities and capacity. He suggested that a number of potential JI/CDM projects exist, and said these will need to overcome challenges relating to, *inter alia*: eligibility criteria; accounting methodology; and defining rules/guidance on baselines. He recommended using average carbon capacity for calculating stock changes.

Ken MacDicken, Director of Research, Center for International Forestry Research (CIFOR), outlined the opportunities for rural livelihoods under CDM forestry projects. He highlighted the dual purposes of the CDM and discussed potential benefits and risks associated with these projects. He emphasized the importance of undertaking social impact assessments. He highlighted the need for, *inter alia*: incentives for multiple benefits; the inclusion of a broad range of LULUCF options under the CDM; a reduction in transaction costs; the approval of tonne-year accounting; and strengthening of local capacities. He concluded that livelihood issues are not a reason to exclude LULUCF from the CDM and that effective rule-making can increase the probability of positive impacts.

Bill Hare, Climate Policy Director, Greenpeace International, spoke on land-use change and forestry activities under the CDM. He opposed inclusion of these activities, stressing problems related to: climate change mitigation, as every tonne of CO₂ sequestered effectively permits an additional tonne of emissions; the sustainable development criterion and its lack of positive impacts on social and equity issues and technological development; and a likely over-estimation of forest conservation and biodiversity protection due to the effects of leakage and a focus on inexpensive sequestration projects.

QUESTION-AND-ANSWER SESSION: In the ensuing question-and-answer session, Germany asked whether the prospect of carbon credits for emissions avoidance, such as prevention of planned deforestation, could act as an incentive for deforestation activities. In response, Sergio Jauregui said this was not a problem in Bolivia, where deforestation is primarily due to socio-economic reasons, and where most people involved in deforestation would not be aware of the Kyoto Protocol or carbon credits. He said any attempts to manipulate the credit system would be identified at the accreditation stage.

In response to a question from Switzerland on how compatible Greenpeace's opposition to LULUCF projects under the CDM was with the objectives of the Protocol, Bill Hare noted that LULUCF carbon credits would not be an appropriate means of achieving stable atmospheric concentrations of CO₂, given questions of permanence and additionality and said that, based on current scientific knowledge, proceeding by reducing emissions was preferable. He also suggested that the Protocol was not necessarily the most suitable context for addressing in-depth forest management issues. Responding to comments on how best to move forward, Ken Andrasko said the US supported working in parallel on the key issues rather than addressing one after the other.

Nigeria questioned whether developing countries would benefit from sinks projects under the CDM and emphasized the need for social impact assessments of projects' long-term implications. Bill Hare suggested that Parties only consider renewable energy projects under the CDM.

Mexico commented on the importance of co-benefits in sinks projects. Ken MacDicken agreed, suggesting harmonization of projects with co-benefit elements from the CBD and Global Environment Facility programmes. Austria underscored the risks of increased forest losses due to perverse incentives. In response, Gareth Phillips said that clear guidelines are necessary to avoid potential deforestation arising from such incentives. Responding to a question from Senegal on baselines in Bolivia, Sergio Jauregui said the baseline assumes that: logging companies continue to exploit and farmers continue slash and burn practices; parameters are dependent on the rate of logging of nearby forest concessions and historical land-use trends established by



communities; and carbon monitoring relies on satellite data, data from nearby logging concessions, and permanent plots. Australia inquired about the lack of carbon projects in degraded land areas in Africa. Ken MacDicken responded that restoring degraded savannah lands using sinks projects would require the transfer of sophisticated technology to resolve the problem of water constraints.

GENERAL ACCOUNTING, VERIFICATION AND REPORTING ISSUES

On Wednesday afternoon, 12 July, and Thursday morning, 13 July, participants considered the issue of general accounting, verification and reporting issues relating to LULUCF activities. Lead authors of the IPCC Special Report presented an overview of the Special Report's coverage of this topic. In addition, representatives of four Parties and one business organization made presentations. This was followed by a question-and-answer session.

IPCC OVERVIEW: Workshop Co-Chair Thorgeirsson introduced this topic, noting that accounting, verification and reporting represent the backbone of LULUCF activities.

Ian Noble, IPCC Special Report Lead Author, noted that the Special Report had addressed issues of accounting, verification and reporting. He stated that the Revised 1996 Guidelines for National Greenhouse Gas Inventories were devised to meet the requirements of the FCCC rather than the Protocol, and said an elaboration would be needed. Co-Chair Thorgeirsson highlighted the importance of distinguishing between which broad decisions need to be taken by COP-6 and which issues can be dealt with at a later stage.

PARTY PRESENTATIONS: Ian Carruthers, Australian Greenhouse Office, outlined Australia's perspective on carbon accounting for LULUCF. He said land areas would enter into an accounting system for Article 3.3 and 3.4 once eligible LULUCF activities were established on that land. He suggested that, once the land area entered into the accounting framework, all changes in greenhouse gases and carbon stocks from all relevant pools should be included, and the land should remain within the system into future commitment periods. He expressed a preference for a narrow approach to the selection of activities and land-based accounting. He drew attention to Australia's work on developing a national carbon accounting system, which he said could be applicable to other countries.

Wayne Lindwall, Director, Agriculture and Agri-Food, Semi-Arid Prairie Agriculture Research Center, Canada, discussed measurement and verification of carbon stock changes relating to agricultural soils. He provided a national perspective on the implications of LULUCF for the agriculture sector, highlighting the importance of considering below-ground carbon stocks and addressing sources and sinks in a balanced way. He noted the potential for benchmark data in long-term studies to distinguish between human-induced and natural activities.

Wojciech Galiński, Researcher for Silvatica Research Consultants, Poland, spoke about the effect of uncertainties in data on estimating CO₂ sequestration for the land-use change and forestry sector in Poland. He said that, although the IPCC method for measuring greenhouse gases is relatively simple, it requires a considerable number of high quality, locally-generated data, and suggested that wide use of the IPCC definitional scenario may result in systematic calculation errors.

Dominick Kwesha, Manager of the Vegetation Resources Inventory System (VegRIS) Project, Zimbabwe Forestry Commission, discussed land-use and vegetation mapping. He illustrated the importance of land-use and vegetation mapping in monitoring LULUCF

based on experiences with the VegRIS Project, which aims to improve management and sustainable use of vegetation resources in Zimbabwe. He noted that VegRIS monitors: deforestation hotspots and degraded lands; resettlement areas; biodiversity areas; and fuelwood deficit areas. He suggested that the potential exists for monitoring carbon reservoirs/pools in Zimbabwe by developing VegRIS to cover a national biomass inventory.

BUSINESS PRESENTATION: Thomas Häusler, Remote Sensing Expert from the Company for Applied Remote Sensing (GAF), spoke about Earth observation in the context of LULUCF applications. He highlighted, *inter alia*, the reliability and cost benefits of using remote sensing to provide data for forest inventories and to monitor ARD at frequent intervals. He stressed the need for a standardized nomenclature and harmonized technical procedures. He noted, however, that remote sensing cannot be used to measure carbon stocks, and suggested using appropriate indicators to monitor changes after extensive field studies coupled with remote sensing to determine the baseline.

QUESTION-AND-ANSWER SESSION: In the ensuing question-and-answer session, Wayne Lindwall responded to a question by Fiji on carbon stocks by noting that they typically need to be assessed to the depth of 30 centimeters, as most soil carbon is stored in the top layers. He agreed with a comment by the Netherlands that detecting changes in soil carbon can sometimes be difficult within the standard five-year monitoring cycle.

Responding to a question by the EU on leakage under Article 3.3 and 3.4, Ian Carruthers said some leakage is inevitable as long as landscapes are not comprehensively covered by the accounting system. On comments relating to the inclusion of degradation under the definition of deforestation, he supported defining deforestation as a significant removal, and said Australia is working on a suggestion under Article 3.3, given that the outcome under Article 3.4 is uncertain. He outlined an approach that defines a reduction of at least 30% in the proportion of canopy cover per hectare on a given area of forest land as deforestation, and said the reduction must be due to direct human-induced removal of trees.

In response to a question by Canada on the rate of uptake of remote sensing in African countries, Zimbabwe, Nigeria and Kenya stressed positive experiences, but emphasized high initial costs, the need to build local expertise, and the benefits of future cooperation in the region. Poland highlighted the benefits of partial harvest, an increasingly common practice that can enable higher sequestration, due to the limited influence on undergrowth.

On the issue of permanence, Wayne Lindwall responded to a question from Sudan by suggesting that carbon loss from agricultural lands will be recorded under a comprehensive accounting system. Bernard Schlamadinger, IPCC, stressed that permanence is the main difference between the energy and LULUCF sectors. He noted that the permanence of activities under Article 3.3 and 3.4 would be addressed in the inventories of Annex I countries, provided that commitment periods are contiguous, while permanence under the CDM could be addressed through liability rules, tonne-year accounting, buffers, project portfolios and insurance policies.

FAO informed participants about systematic terrestrial observations under the International Global Observation System (IGOS), including the Terrestrial Carbon Observation Initiative and the Global Observation of Forest Changes. He noted the challenges of combining satellite observations and ground observations.



LINKAGES WITH OTHER ARTICLES OF THE KYOTO PROTOCOL

On Thursday morning, 13 July, Workshop Co-Chair Thorgeirsson asked participants to consider the question of linkages with other articles of the Protocol, stressing the importance of being aware of the connections between the various issues under negotiation. Helen Plume (New Zealand), Co-Chair of the SBSTA contact group on Protocol Articles 5 (methodological issues), 7 (communication of information) and 8 (review of information), outlined progress in negotiations on these issues, which she said included preparation of various sets of guidelines for Annex I Parties. She noted that the development of good practice guidance relating to national systems for data collection did not include the LULUCF sector specifically, although the principles did apply. She noted linkages between Articles 5, 7 and 8 with other issues under negotiation, including compliance, mechanisms and LULUCF. She drew attention to the fact that final decisions on some parts of the guidelines under Articles 5, 7 and 8 depend on decisions being taken in other areas, citing as an example that it will not be possible to determine what will be reported under Article 7 or reviewed under Article 8 until definitions under Article 3.3 are determined. She observed that, in spite of the linkages between Articles 5, 7 and 8 and LULUCF, there appeared to be very little overlap in the composition of the two negotiating groups working on these issues. The UK noted that work on good practice could be applicable at least in part to the LULUCF sector.

AOSIS highlighted the significant overlaps and linkages between the Protocol mechanisms and LULUCF. He applauded positive examples of proposed CDM projects that attempt to address difficult issues such as non-permanence. However, he drew attention to “bad projects,” noting the potential for leakage. He also highlighted the importance of considering liability issues and called for independent verification and certification of projects. Noting proposals for credits for emissions avoidance projects, he asked if Parties responsible through private companies for deforestation in developing countries would have such actions included as debits. Côte d’Ivoire, with Burkina Faso, noted the multiple socio-economic effects of forests and forestry in Africa, and asked how credits might be allocated for projects relating to forests owned by foreign companies. Nigeria noted that the focus of discussions had been on forestry rather than land-use change in general. He suggested that credits for projects could be awarded at the end of the project, rather than earlier.

Noting a need for reliable data and information, Poland called for an international, multidisciplinary research project relating to various elements of the Protocol and regional rural development, including socio-economic considerations. Bolivia highlighted links between Article 12 (CDM) and Article 3.3 and 3.4, and suggested holding a discussion on possibly assigning a proportion of actions under CDM to LULUCF activities and a proportion for energy projects. Co-Chair Thorgeirsson said linkages between the various climate change issues in the lead-up to COP-6 should also be carefully considered within delegations.

CONCLUSIONS OF THE CO-CHAIRS

On Thursday afternoon, 13 July, Co-Chair Thorgeirsson summarized the key issues addressed during the workshop. He highlighted four main crosscutting issues that emerged:

- coverage – addressing what, when and how to measure and monitor carbon stocks relating to LULUCF, which encompass issues such as certainty and permanence;

- attribution or separation – distinguishing between human-induced and natural causes;
- accounting – including what “triggers” entry of land into an accounting system under Article 3.3 and 3.4, issues of reporting, transparency, and third-party verification; and
- links to assigned amounts – addressing questions of credit assignments.

He concluded that policy makers have a critical responsibility to develop sound policy judgments and prioritize issues. He suggested the possibility of exploring and synthesizing these issues further, while noting that there was to be no formal report from the workshop.

In the ensuing discussion, Germany emphasized the need to take into account differences in national circumstances when considering carbon credits. Japan highlighted variation between the credits gained from sinks activities and emissions targets and recommended incentives for countries that are disadvantaged in terms of land area. The European Commission underscored the potential financial implications of excluding the residual sink from credit systems. The US underscored the significant scientific uncertainty surrounding the potential residual sink, and called for more research in this area.

AOSIS called for a political overlay to the scientific framework for LULUCF issues provided by the IPCC Special Report, stressing the need to give appropriate consideration to issues such as the accounting system for assigned amounts and processes of verification.

Commenting on views expressed by participants on the need for consideration of national circumstances, he cautioned against a “pick and choose” approach, where the activities to be included under Article 3.4 are selected at the national level. Canada, supported by New Zealand, replied that the intention was not a “pick-and-choose” system, but getting to the same goal via different routes that reflect each countries’ unique circumstances. He said superimposed solutions that do not fit should be avoided. France suggested using existing systems and procedures at the national level as far as possible for accounting, monitoring and verification. Poland stressed the need for a good description of “baseline” with common elements for all Parties. Austria recommended taking equity issues into consideration. Australia, supported by the US, noted the continuation of the process beyond COP-6, which he stressed was not the end point. He said options under Article 3.4 could be sequenced and decisions at COP-6 should focus on what is needed for the first commitment period, while keeping the long-term future in mind. Recalling the decisions on LULUCF at Kyoto, Finland stressed that decisions taken at COP-6 must be such that national-level implications are clear.

CLOSING PLENARY

In the closing Plenary on Thursday afternoon, 13 July, COP-5 President Jan Szyszko said the aim of the workshop was to increase understanding of the issues and of participants’ respective positions. Workshop Co-Chair Philip Gwage said useful progress was made at this meeting and noted the prevailing view among participants that sinks are an extremely important issue. He also reflected on participants’ concern that the decisions taken in relation to LULUCF must preserve the integrity of the FCCC and Protocol. He hoped that the advances made at this workshop would be built upon at SB-13.

Workshop Co-Chair Halldor Thorgeirsson said this was a very productive workshop that assisted in building the bridge between the technical phase and the policy phase of discussions. He said the workshop was an effective method for proceeding carefully through the



IPCC Special Report, and stated that the presence of the lead authors contributed greatly to progress, as had the quality of presentations and participants' discussions. He highlighted the lessons learned on how to increase the probability of projects meeting Protocol and environmental objectives, and said successful projects are those that meet local goals and aspirations. He said this workshop provided time to carefully consider the issues and contributed to collective understanding of participants' various perspectives.

On the process leading to COP-6, Co-Chair Thorgeirsson said the next step was for Parties to prepare submissions by 1 August outlining their positions on various matters relevant to Article 3.3 and 3.4. He noted that Annex I Parties also need to submit some preliminary data and information relating to Article 3.4. He said the submissions would provide a considerable amount of information and material to be digested and discussed at SB-13, and noted that informal consultations would take place between SB-13 and COP-6 to assist in developing the final text for a decision at COP-6.

Dennis Tirpak, SBSTA Coordinator for the FCCC Secretariat, said this had been a very focused workshop and expressed the hope that it was of benefit to all Parties. Co-Chair Thorgeirsson thanked participants, the Government of Poland for its hospitality in hosting the workshop, and the Secretariat, and closed the meeting at 4:00 pm.

THINGS TO LOOK FOR BEFORE COP-6

FCCC CONSULTATIONS AND WORKSHOPS: A number of workshops and consultations were announced at SB-12 to assist the process leading to SB-13, including: consultations on compliance from 18-20 July 2000 in Reykjavik, Iceland; consultations on technology transfer from 2-4 August 2000, in Colorado, USA; an African regional workshop on non-Annex I communications from 14-18 August 2000 in South Africa; and, informal consultations on adverse effects from 23-25 August 2000, tentatively planned for Bonn, Germany. For more information, contact: the FCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.de; Internet: <http://www.unfccc.int>

XXI IUFRO WORLD CONGRESS: The International Union of Forest Research Organizations' (IUFRO) World Congress will meet in Kuala Lumpur, Malaysia, from 7-12 August 2000. For more information, contact: Congress Secretariat IUFRO 2000, Putra World Trade Center, 41 Jalan Tun Ismail, 50480 Kuala Lumpur, Malaysia; e-mail: iufroxxi@frim.gov.my; Internet: <http://iufro.boku.ac.at/iufro/congress/>

CONGRESS OF THE 29TH INTERNATIONAL GEOGRAPHICAL UNION COMMISSION ON CLIMATOLOGY: This conference will take place from 9-13 August 2000 in Seoul, South Korea. The theme of the conference is "Climate Change and its Impacts." For more information, contact: Hyoun-Young Lee, Department of Geography, Konkuk University, 93-1, Mojin-dong, Kwangjin-gu, Seoul, 143-701, South Korea; tel: +822-446-6756; fax: +822-446-8194; e-mail: leekwons@kkucc.konkuk.ac.kr

FIFTH INTERNATIONAL CONFERENCE ON GREENHOUSE GAS CONTROL TECHNOLOGIES (GHGT-5): This conference will take place from 13-16 August 2000, in Cairns, Australia. For more information, contact: Colin Paulson, CSIRO Energy Technology, PO Box 136, North Ryde, NSW 1670, Australia; tel: +61-2-9490-8790; fax: +61-2-9490-8909; e-mail: c.paulson@det.csiro.au; Internet: <http://www.ieagreen.org.uk>

INTERNATIONAL CONFERENCE ON FOREST ECOSYSTEMS - ECOLOGY, CONSERVATION AND SUSTAINABLE MANAGEMENT: This conference will meet in Chengdu, Sichuan, China, from 15-21 August 2000. The conference will aim to share the knowledge and technologies needed for sustainable management of forest resources and biodiversity conservation and to promote multi-functional management and forest resources utilization. For more information, contact: Shi Zuomin and Dong Na, Institute of Forest Ecology, Environment and Protection, Chinese Academy of Forestry, tel: +86-10-6288-8308 or 6288-9513; fax: +86-10-6288-4972; e-mail: Shizm@fee.forestry.ac.cn or Keyan.lb@fee.forestry.ac.cn; Internet: <http://www.agnic.org/mtg/2000/icfeecsm.html>

13TH SESSION OF THE FCCC SUBSIDIARY BODIES: SB-13 will convene from 11-15 September 2000 in Lyon, France, and will be preceded by one week of informal meetings, including workshops. For more information, contact: the FCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.de; Internet: <http://www.unfccc.int>

LULUCF CONSULTATIONS: Informal SBSTA consultations are tentatively scheduled to take place during the second week of October with the aim of making further progress on negotiations prior to COP-6. For more information, contact: the FCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.de; Internet: <http://www.unfccc.int>

FAO EXPERT CONSULTATION ON FOREST CHANGE: This meeting will take place from 16-20 October 2000 in San Jose, Costa Rica. For more information, contact: Robert Davis, Senior Forestry Officer (Forest Resources Appraisal and Monitoring), Forestry Department, FAO; tel: +39-06-570-53596; e-mail: Robert.davis@fao.org; Internet: <http://www.fao.org/forestry/Forestry.htm>

11TH INTERNATIONAL SOIL CONSERVATION ORGANIZATION CONFERENCE: ISCO 2000 will be held from 22-27 October 2000 in Buenos Aires, Argentina. For more information, contact: Faculty of Agronomy - University of Buenos Aires, e-mail: isco2000@mail.uba.ar; Internet: <http://www.isco2000.org.ar/ingles/index-ing.htm>

EARTH TECHNOLOGIES FORUM: This meeting, organized by the Alliance for Responsible Atmospheric Policy, will be held in Washington, DC, USA, from 30 October – 1 November 2000. For more information, contact: Alliance for Responsible Atmospheric Policy; tel: +1-703-243-0344; e-mail: alliance98@aol.com; Internet: <http://www.earthforum.com/>

NATIONAL AND REGIONAL CLIMATE CHANGE IMPACT ASSESSMENTS IN THE FORESTRY SECTOR: This meeting will be held from 10-13 November 2000 in Potsdam, Germany, and will be hosted by the Potsdam Institute for Climate Impact Research and European Forest Institute. For more information, contact: Marcus Lindner, Potsdam Institute for Climate Impact Research, Telegrafenberg, P.O. Box 601203, D-14412 Potsdam, Germany; tel: +49-331-288 2677; fax: +49-331-288-2695; e-mail: lindner@pik-potsdam.de; Internet: <http://www.pik-potsdam.de/>

SIXTH CONFERENCE OF THE PARTIES TO THE FRAMEWORK CONVENTION ON CLIMATE CHANGE: COP-6 will be held in The Hague, The Netherlands, from 13-24 November 2000. For more information contact: the FCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.de; Internet: <http://cop6.unfccc.int>