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Earth Negotiations Bulletin

IPCC-24 #2

A Reporting Service for Environment and Development Negotiations

Online at http://www.iisd.ca/climate/ipcc24/

Vol. 12 No. 273 *Published by the International Institute for Sustainable Development (IISD)* *Friday, 23 September 2005*

IPCC WORKING GROUP III HIGHLIGHTS THURSDAY, 22 SEPTEMBER 2005

The eighth session of Working Group III (WGIII-8) of the Intergovernmental Panel on Climate Change (IPCC) began on Thursday, 22 September, in Montreal, Canada, with delegates considering the Special Report on Carbon Dioxide Capture and Storage (Special Report). In the morning, delegates heard opening addresses, listened to a presentation on the draft Summary for Policymakers (SPM) and began deliberations on the text of the draft SPM. In the afternoon, delegates continued line-by-line deliberations on the text. Delegates also met in a contact group to consider the first two paragraphs of the SPM, which define carbon dioxide capture and storage (CCS) and discuss how it could contribute to mitigating climate change.

OPENING OF THE SESSION

IPCC Chairman Rajendra Pachauri (India) welcomed delegates and noted the high expectations surrounding the Special Report because this is the first time that a comprehensive assessment of CCS has been carried out. He highlighted that the drafting process included the participation of industry and civil society, and emphasized the need to ensure outreach efforts in light of existing information and knowledge gaps on CCS.

PRESENTATION ON THE DRAFT SUMMARY FOR POLICY MAKERS

WGIII Co-Chair Bert Metz (The Netherlands) introduced the draft SPM. He explained that highlights from the SPM would be presented as it would not be practical to introduce every chapter of the Special Report as originally envisaged in the agenda. WGIII Co-Chair Ogunlade Davidson (Sierra Leone) explained that the SPM is organized on the basis of several key questions about CCS. He noted that reference to technology diffusion and transfer was not included in the SPM because of a lack of literature, and that information on gaps in CCS knowledge was not included due to space limitations. He reminded delegates that the SPM aims to cover key issues relevant to decision makers but that it does not include policy recommendations.

Noting the difficulty in categorizing the current maturity of different CCS system components, Co-Chair Davidson said that CCS technologies had been grouped as being at one of four "phases" of maturity: those in the research phase; those in the demonstration phase; those that are economically feasible under certain conditions; and those that have a mature market.

Continuing the presentation, Co-Chair Metz noted that, on electricity costs, assumptions of oil prices at US$15 - 20 per barrel could not be changed given a lack of literature. On storage potential, he noted that: an expert judgment was made to derive the figure of 2000Gt of carbon dioxide for geological storage; industrial uses of carbon dioxide are technically possible but that their potential is relatively small; and technical estimates for oceans and mineral carbonation cannot yet be made. Regarding the economic potential of CCS, he stated that since experience with CCS is limited, scenario studies are being used.

Considering the local risks associated with CCS, Co-Chair Metz noted that: risks from a carbon dioxide pipeline would be comparable to those of hydrocarbon pipelines, while the risks for carbon dioxide storage could be comparable with storing substances such as acid gas; ocean storage could have significant risks, but that there is insufficient information on ecosystem impacts; and that the risks of mineral carbonation would be those related to the environmental impacts of mining operations. On the implications of leakage from storage, he said the figures in the draft SPM are indicative only. On emissions estimation and accounting, he said the 2006 IPCC Guidelines for National Greenhouse Gas Inventories will include guidance on incorporating CCS in inventories.

CONSIDERATION OF THE DRAFT SUMMARY FOR POLICY MAKERS

Noting that nearly 800 comments were received on the draft SPM, Co-Chair Metz highlighted some general ones, including comments on restructuring the order of the SPM and on distinguishing between ocean and geological storage. He noted that a glossary would be included in the printed version and said more technical information and policy options should be avoided given the purpose and nature of the SPM.

On a proposal by Canada to include a foreword clarifying the scope of the SPM, Co-Chair Metz said that the Co-Chairs would prepare the foreword but that it would not be presented as part of the draft SPM for approval. SWITZERLAND, with CHINA and DENMARK, requested the Co-Chairs provide an opportunity for delegates to comment on the foreword, while AUSTRALIA proposed an informal discussion on the issue. Co-Chair Metz

This issue of the *Earth Negotiations Bulletin* © <enb@iisd.org> is written and edited by Ingrid Barnsley, Alexis Conrad, María Gutiérrez, and Miquel Muñoz. The Digital Editor is Francis Dejon. The Editor is Pamela S. Chasek, Ph.D. <pam@iisd.org> and the Director of IISD Reporting Services is Langston James "Kimo" Goree VI <kimo@iisd.org>. The Sustaining Donors of the *Bulletin* are the Government of the United States of America (through the Department of State Bureau of Oceans and International Environmental and Scientific Affairs), the Government of Canada (through CIDA), the Swiss Agency for Environment, Forests and Landscape (SAEFL), the United Kingdom (through the Department for International Development - DFID), the Danish Ministry of Foreign Affairs, the Government of Germany (through the German Federal Ministry of Environment - BMU, and the German Federal Ministry of Development Cooperation - BMZ), the Netherlands Ministry of Foreign Affairs, the European Commission (DG-ENV), and the Italian Ministry of Environment. General Support for the *Bulletin* during 2005 is provided by the United Nations Environment Programme (UNEP), the Government of Australia, the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, the Ministry of Sustainable Development and the Ministry of Foreign Affairs of Sweden, the Ministry of Environment and the Ministry of Foreign Affairs of Norway, the Ministry of Environment and the Ministry of Foreign Affairs of Finland, SWAN International, the Japanese Ministry of Environment (through the Institute for Global Environmental Strategies - IGES) and the Japanese Ministry of Economy, Trade and Industry (through the Global Industrial and Social Progress Research Institute - GISPRI). Funding for translation of the *Earth Negotiations Bulletin* into French has been provided by the International Organization of the Francophonie (IOF) and the French Ministry of Foreign Affairs. Funding for the translation of the *Earth Negotiations Bulletin* into Spanish has been provided by the Ministry of Environment of Spain. The opinions expressed in the *Earth Negotiations Bulletin* are those of the authors and do not necessarily reflect the views of IISD or other donors. Excerpts from the *Earth Negotiations Bulletin* may be used in non-commercial publications with appropriate academic citation. For information on the *Bulletin*, including requests to provide reporting services, contact the Director of IISD Reporting Services at <kimo@iisd.org>, +1-646-536-7556 or 212 East 47th St. #21F, New York, NY 10017, USA. The ENB Team at IPCC-24 can be contacted at Room 4A, 4th Floor, ICAO, or by e-mail at <Ingrid@iisd.org>.

said an informal discussion would be welcome if time allowed it and, with KENYA, noted the importance of concentrating on approval of the SPM. FRANCE stressed the need to clarify the cost of assumptions and time frames for storage. Delegates then began line-by-line discussions of the draft SPM, in the order of the key questions around which the SPM is structured.

What is carbon dioxide capture and storage and how could it contribute to mitigating climate change? Co-Chair Metz introduced revised text incorporating some of the comments from governments and organizations. Discussion focused on, *inter alia*: specific reference to fossil fuel emissions, the long-term nature of CCS, and stabilization of greenhouse gases; differentiating ocean storage from geological storage; and whether CCS "is" or "could be" a mitigation option. Many delegates expressed concern that certain passages might be policy prescriptive.

On referencing emission sources, SWITZERLAND, supported by PAKISTAN, CHILE, NORWAY and others, noted that "anthropogenic sources" was too vague as it could include land use, land use change, and forestry. Delegates agreed to a proposal by AUSTRALIA and NORWAY to replace "anthropogenic sources" with "industry and energy related sources."

Discussion also focused on whether CCS "is" or "could be" a mitigation option, with FRANCE, SWITZERLAND, GERMANY, ZAMBIA, AUSTRIA, and others saying that it "could be", while SAUDI ARABIA, AUSTRALIA, and the US supported "is" with some qualifying text. FRANCE stated that it could not accept that "CCS is a mitigation option" as long as CCS included ocean storage. No agreement was reached and a contact group was convened.

CHINA questioned a paragraph quoted from the TAR. Co-Chair Metz explained that the paragraph was included in an attempt to answer the question of whether CCS was needed, and that the language agreed to in the TAR was used to avoid the risk of a long debate. CHINA said the paragraph did not provide additional information and it should either be revised or deleted. This issue was also forwarded to the contact group.

Delegates discussed other revisions to the text in this section. SWITZERLAND, supported by KOREA, BELGIUM, and others, noted that referring only to stabilization and not to reduction of greenhouse gas concentrations is prescriptive. SLOVENIA, supported by GERMANY, proposed a reference to Article 2 of the UNFCCC (ultimate objective). The US proposed the use of more general terminology like "climate change goals," rather than specifying "stabilization and reduction of greenhouse gas emmisions." SWEDEN proposed inserting a reference to "management" instead of "enhancement" of biological sinks. SAUDI ARABIA, opposed by SLOVENIA and RUSSIA, was not supportive of the reference in the text to nuclear power as a mitigation option. The US said that the potential for CCS to "significantly" reduce mitigation costs should be included in the text. BANGLADESH proposed stronger reference to energy efficiency. No agreement was reached on inclusion of these proposals.

What are the characteristics of carbon dioxide capture and storage? In the afternoon, Co-Chair Davidson presented revised text for this section based on prior comments from governments and organizations. Several delegates suggested modifying the section title. SLOVENIA, opposed by the UK, proposed specifying "anthropogenic sources of carbon dioxide." The UK suggested citing "suitable sources of carbon dioxide." After further discussion, delegates agreed to revert to the original section title.

Discussion then shifted to the substantive parts of this section, which define large point sources of carbon dioxide and outline potential storage methods. Delegates agreed to the Co-Chairs' proposal to include a table profiling worldwide large stationary carbon dioxide sources with emissions of more than 0.1 $MtCO_2$ per year. AUSTRALIA noted the need for the text to show that the range of technical options may be greater than those that could be used legally. FRANCE and DENMARK highlighted the importance of not excluding the possibility that aquifers and geothermal formations could be used to store carbon dioxide even if they have other uses. Lead Author of the Technical Summary of the Special Report, Sally Benson, noted that since the intention is not to store carbon dioxide in agriculture or water-drinking sources, the term "saline" is used to define those formations that have no other suitable usage. She also noted that geothermal areas are not seen as a first choice for carbon dioxide storage in deep underground locations. Delegates then agreed to include a footnote that defines saline formations and notes that because the use of geothermal energy is likely to increase, potential geothermal areas may not be suitable for CCS.

The US, opposed by GERMANY and AUSTRIA, called for removal of the reference to leakage from the transport of carbon dioxide as a factor in the net reduction of emissions through CCS, given the minor impact of leakage. The UK proposed, and delegates agreed, to include reference to "any leakage" from transport. DENMARK and AUSTRIA asked for more detail on the differences between energy consumption associated with CCS in coal and gas power plants. AUSTRIA, supported by BELGIUM, suggested noting that the percentages in this section were calculated under the assumption that leakage does not occur, while the UK, with AUSTRIA, proposed mentioning "secure storage" instead of "leakage." DENMARK, opposed by AUSTRALIA, and supported by CHILE and AUSTRIA, called for referencing biomass in this section. BELGIUM requested inclusion of a reference to the time scale of storage noted elsewhere in the SPM. Delegates agreed to a footnote on storage of mineral carbonates, as amended by FRANCE and the UK to exclude deep geological storage of carbonates.

IN THE CORRIDORS

The corridors of the ICAO building were quiet throughout the first day of WGIII-8, as most delegates were to be found in the plenary room participating in an exhaustive, and possibly exhausting, line-by-line review of the draft SPM text. Several participants wondered about the pace of progress, noting that only four of 32 paragraphs had been addressed. One observer noted that while the discussion ranged from the substance of CCS to comma placement, all aspects of the discussion are important given the need to provide policy makers with a comprehensive and readable summary of CCS. Another delegate remarked on the level of involvement of a wide range of delegates in the deliberations, noting that this should help to ensure that the resulting text reflects the consensus of IPCC members, in keeping with the spirit of the organization.