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WORKSHOP FINAL

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TECHNICAL WORKSHOP ON MECHANISMS UNDER ARTICLES 6, 12 AND 17 OF THE KYOTO PROTOCOL: 9-15 APRIL 1999

The United Nations Framework Convention on Climate Change Technical Workshop on Mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol was held from 9-15 April 1999 at La Redoute in Bonn-Bad Godesberg, Germany. The workshop was designed to advance the discussion on technological and methodological aspects of Article 6 (joint implementation), Article 12 (clean development mechanism) and Article 17 (emissions trading) so that the Conference of the Parties can take decisions on all three mechanisms at its sixth session. The workshop was attended by approximately 100 invited participants, which included experts from Parties and representatives from governments, UN agencies, and intergovernmental and non-governmental organizations. Core topics at the workshop included reference case/baseline methodologies, additionality, verification and reporting in relation to the clean development mechanism (CDM) and Article 6 projects. Further issues addressed included the validation and funding of projects under the CDM and the adaptation component, and reporting, verification and accountability issues related to emissions trading. Participants also exchanged views on capacity building for developing country Parties.

A BRIEF HISTORY OF THE FCCC AND THE KYOTO PROTOCOL

The United Nations Framework Convention on Climate Change (FCCC) was adopted on 9 May 1992, and was opened for signature at the UN Conference on Environment and Development in June 1992. The Convention entered into force on 21 March 1994, 90 days after receipt of the 50th ratification. It currently has been ratified by 176 countries.

COP-1: The first meeting of the Conference of the Parties to the FCCC (COP-1) took place in Berlin from 28 March - 7 April 1995. In addition to addressing a number of important issues related to the future of the Convention, delegates reached agreement on what many believed to be the central issue before COP-1 — adequacy of commitments, the "Berlin Mandate." The result was to establish an open-ended *Ad Hoc* Group on the Berlin Mandate (AGBM) to begin a process toward appropriate action for the period beyond 2000, including the strengthening of the commitments of Annex I Parties through the adoption of a protocol or another legal instrument.

COP-1 also requested the Secretariat to make arrangements for sessions of the subsidiary bodies on scientific and technological advice (SBSTA) and implementation (SBI). SBSTA would serve as the link between the information provided by competent international bodies, and the policy-oriented needs of the COP. During the AGBM process, SBSTA addressed several issues, including the treatment of the IPCC's Second Assessment Report (SAR). SBI was created to develop recommendations to assist the COP in the review and assessment of the implementation of the Convention and in the preparation and implementation of its decisions. SBI also addressed several key issues during the AGBM process, such as the national communications and activities implemented jointly (AIJ).

The *Ad Hoc* Group on Article 13 (AG13) was set up to consider the establishment of a multilateral consultative process available to Parties to resolve questions on implementation. AG13-1, held from 30-31 October 1995 in Geneva, decided to request Parties, non-Parties, and intergovernmental and non-governmental organizations to make written submissions in response to a questionnaire on a multilateral consultative process (MCP). Delegates continued their discussion over the course of three meetings. At their fifth session, they agreed that the MCP should be advisory rather than supervisory in nature and AG13 should complete its work by COP-4.

***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 possible policies and measures to strengthen the commit-

IN THIS ISSUE

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ments of Annex I Parties, how Annex I countries might distribute or share new commitments and whether commitments should take the form of an amendment or protocol. AGBM-4, which coincided with COP-2 in Geneva in July 1996, completed its in-depth analysis of the likely elements of a protocol and States appeared ready to prepare a negotiating text. At AGBM-5, which met in December 1996, delegates recognized the need to decide whether or not to allow mechanisms that would provide Annex I Parties with flexibility in meeting 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, respectively, delegates "streamlined" a framework compilation text by merging or eliminating some overlapping provisions within the myriad of proposals. 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 levels. In October 1997, as AGBM-8 began, US President Bill Clinton included a call for "meaningful participation" by developing countries in the negotiating position he announced in Washington. With those words, the debates that shaped agreement back in 1995 resurfaced, with an insistence on G-77/China involvement once again linked to the level of ambition acceptable by the US. In response, the G-77/China distanced itself from attempts to draw developing countries into agreeing to anything that could be interpreted as new commitments.

COP-3: The Third Conference of the Parties (COP-3) was held from 1-11 December 1997 in Kyoto, Japan. Over 10,000 participants, including representatives from governments, intergovernmental organizations, NGOs and the media, attended the Conference, which included a high-level segment featuring statements from over 125 ministers. Following a week and a half of intense formal and informal negotiations, including a session that began on the final evening and lasted into the following day, Parties to the FCCC adopted the Kyoto Protocol on 11 December. In the Kyoto Protocol, Annex I Parties to the FCCC agreed to commitments with a view to reducing their overall emissions of six greenhouse gases (GHGs) by at least 5% below 1990 levels between 2008 and 2012. The Protocol also established emissions trading, "joint implementation" between developed countries, and a "clean development mechanism" (CDM) to encourage joint emissions reduction projects between developed and developing countries. As of 15 March 1999, 84 countries have signed the Kyoto Protocol.

POST-KYOTO FCCC MEETINGS: The subsidiary bodies of the FCCC met from 2-12 June 1998 in Bonn, Germany. SBSTA-8 agreed to draft conclusions on, *inter alia*, cooperation with relevant international organizations, methodological issues, and education and training. SBI-8 reached conclusions on, *inter alia*, national communications, the financial mechanism and the second review of adequacy of Annex I Party commitments. In its sixth session, AG13 concluded its work on the functions of the Multilateral Consultative Process (MCP). After joint SBI/SBSTA consideration and extensive contact group debates on the flexibility mechanisms, delegates could only agree to a compilation document containing proposals from the G-77/China, the EU and the US on the issues for discussion and frameworks for implementation.

COP-4: The Fourth Conference of the Parties (COP-4) was held from 2-13 November 1998 in Buenos Aires, Argentina, and was attended by over 5,000 participants. During the two-week meeting, delegates deliberated decisions for the COP during SBI-9 and SBSTA-9. Issues related to the Kyoto Protocol were considered in joint SBI/SBSTA sessions. A high-level segment, which heard statements from over 100 ministers and heads of delegation, was convened on Thursday, 12 November. Following hours of high-level "closed door" negotiations and a final plenary session that concluded early Saturday morning, delegates adopted the Buenos Aires Plan of Action. Under the Plan of Action, the Parties declared their determination to strengthen the implementation of the Convention and prepare for the future entry into force of the Kyoto Protocol. The Plan contains the Parties' resolution to demonstrate substantial progress on: the financial mechanism; the development and transfer of technology; the implementation of FCCC Articles 4.8 and 4.9, as well as Protocol Articles 2.3 and 3.14; activities implemented jointly (AIJ); the mechanisms of the Kyoto Protocol; and the preparations for the first meeting of the Parties (COP/MOP-1).

REPORT OF THE WORKSHOP

The Technical Workshop opened on Friday, 9 April 1999. Kok Kee Chow, Chair of the Subsidiary Body for Scientific and Technological Advice (SBSTA), highlighted two related milestones recently achieved by Parties: the setting of time frames for agreeing on a framework for rules related to Protocol Articles 6 (joint implementation), 12 (clean development mechanism) and 17 (emissions trading); and emphasizing the need for capacity building that will facilitate the implementation of technology transfer, AIJ and other issues. He stressed the urgency for building capacity and noted that this workshop was the first instance where Parties, IGOs and NGOs could measure their work on the mechanisms since COP-4. He said the workshop would be highly technical, with expert presentations and time for questions, answers and exchange of views.

FCCC Executive Secretary Michael Zammit Cutajar, reiterating that the key word for the workshop is "technical," said the meeting would test the capacity of Parties to engage in technical work while keeping political issues "on the back burner." The need to address technical issues is growing throughout the FCCC process and the full Convention bodies may be too unwieldy for such work. He noted that "technical" does not necessarily mean complex and stressed that mechanisms must work in the real world, not just on the drawing boards of climate change specialists. He cautioned that striving too hard for perfection runs the risk of diminishing the process and called for credible but simple solutions.

Chair Chow noted that SBI Chair Bakary Kante (Senegal) would not attend the session and that SBI Vice Chair Mohammad Reza Salamat (Iran) would assume his duties.

On Friday and Saturday, 9-10 April, participants heard expert presentations on different aspects of each of the Kyoto Protocol mechanisms and engaged in question and answer sessions. From Monday through Wednesday, 12-14 April, Parties presented their proposals on technical and methodological aspects of the mechanisms and met in working groups to further consider each of the mechanisms. Discussions in the working groups were structured according to the major technical and methodological theme to which submissions by Parties, as well as any technical inputs from UN agencies, IGOs and NGOs, were related. On Thursday, participants offered their views on facilitating capacity building for developing country Parties, especially small island States and least developed countries, for project activities under the CDM, and for facilitating the participation of Parties with economies in transition in the other mechanisms.

EDITOR'S NOTE: Due to the informal nature of the meeting, with participants speaking in a personal capacity, the statements made during the question and answer sessions do not include attribution to particular Parties or organizations, but instead focus only on the content of the discussion.

ARTICLE 12: CLEAN DEVELOPMENT MECHANISM (CDM)

OVERVIEW: Eric Haites, Margaree Consultants, Inc., presented an overview of the CDM and discussed its operation and governance. Regarding the financing of CDM projects, he cautioned against using a single exclusive fund for all projects and recommended a number of

other options, including: a bilateral approach with Annex I entities, governments and international institutions; multilateral funds operated by legal entities or international institutions; unilateral implementation by host governments or country entities; or a portfolio of projects offered by one or several host governments. Under the CDM, project proponents would invest in or operate emissions reduction projects in non-Annex I Parties. Proponents could include: Annex I entities (e.g., transnational companies); Annex I government agencies; international institutions (e.g., regional development banks); private investment funds (e.g., Edison Electric Institute UtiliTree Fund); host country governments; and, host country entities.

Haites recommended a "tribunal" model for decisions relating to project eligibility and certification of certified emissions reductions (CERs). The Executive Board would receive recommendations from operational entities retained by project proponents. Interested stakeholders would be notified and have the opportunity to review the report and request additional information, and with proponents, may submit additional information. He suggested that the Executive Board adopt guidelines to define "interested stakeholders." Under the "tribunal" model, the Executive Board provides an independent, central forum for consistent and transparent decision making that is open to all interested stakeholders. The disadvantages are that decision making would be slow and costly. To function as proposed, he said the Executive Board must have limited membership and should reflect the "partnership" nature of CDM between Annex I and non-Annex I Parties. Members would be nominated by governments and appointed by the COP/MOP.

QUESTION AND ANSWER SESSION: Discussion in the question and answer session centered on the role of the Executive Board, financing adaptation projects from CDM proceeds, and approaches to defining and implementing CDM projects. On the proposed centralized approach, whereby the Executive Board approves, reviews and assesses the sustainability of every CDM project, some participants said this had technical implications that would significantly increase the administrative costs and bureaucracy of the Board. One suggested limiting the Executive Board's role to the design of criteria for reviews while a number advocated a division of labor with other institutions.

In response to questions on the different pricing of CERs, Haites said that these could differ depending on the types of projects (e.g., some governments may choose not to accept CERs from nuclear projects and thus the prices for such CERs would be lower than those from energy efficiency projects even though both meet the task of reducing greenhouse gases (GHGs)).

Participants inquired about possible percentage allocations of CER proceeds towards administrative and adaptation costs. In response, Haites said that they should be determined by the COP/MOP. Regarding how adaptation funds will be used, he said that the COP should make the final decision, but suggested that a single fund, not limited to countries participating in CDM projects, be established for this purpose. Concerning the suggested options for funding, he said that a wide variety allows for more projects and should not be seen as a bureaucratic problem. Regarding the source of seed funds for the Executive Board of CDM, Haites suggested that these may come from other institutions and be recovered once the projects are underway.

One participant underscored the need for both investing and host countries to adopt guidelines for CDM projects. Another suggested that the Executive Board should be mandated to produce only draft decisions with final decisions taken by the COP/MOP. However, decisions on operational issues such as determination of projects and CERs may need to be made by the Executive Board. Regarding stakeholder involvement in project registration, one participant inquired who constitutes stakeholders, what issues could be challenged and what could be a suitable time period for this exercise. Haites responded that the Executive Board would have to set involvement guidelines, stakeholder consultation time could be limited to 30 to 60 days, and Parties could determine stakeholder involved.

REFERENCE CASE/BASELINE METHODOLOGIES (12.5(B) AND (C)) AND ADDITIONALITY (12.5(C)): Axel Michaelowa identified parameters for consideration when setting a baseline, including geographic and economic scale, lifetime of the baseline, lifetime of the equipment and economic viability of the project. He noted that the quality of the baseline is critical as parameter choice can lead to "cheating." He underscored that an agreed baseline methodology could minimize cheating and identified combined and simplified approaches to baseline-setting, including benchmarks, a technology matrix approach and a default baseline matrix approach. He emphasized the importance of capacity building for baseline use, especially among public institutions of host and investor countries, private project proponents and third party verifiers/certifiers. He noted that baseline methodology cannot forecast uncertainty, solve the additionality issue, or prevent baselines from rewarding current inefficient policies.

Robert Williams, UNIDO, discussed baselines for projects in the industrial sector. He highlighted UNIDO's focus on industrial efficiency and the identification of methods for evaluating baseline methodologies. He described "Identify," a computer software programme that assesses a project's GHG emissions reduction and financial impact.

Liu Deshun, Tsinghua University, presented the developing country perspective on baselines and additionality approaches. He defined a baseline as a reference case estimating the GHG emissions level that would most likely occur based on the technical and economic circumstances in the host country in absence of CDM activities. The baseline is used as a reference case in calculating, assessing, measuring and verifying the net CO_2 emissions reduction, the additionality and the incremental cost of reductions generated by a CDM project.

Liu identified different approaches to determining baselines. For example, a project-specific approach can determine a precise baseline based on the technical specification and/or operation records of existing facilities. A technology benchmark matrix approach forms a baseline by country and by technology category, with a benchmark suitable for groups of similar CDM projects. This approach would result in lower transaction costs in implementation. Under a top-down baseline, the total national emissions in a given year would be divided and assigned as baseline emissions by, *inter alia*, sector, region, technology, etc., in a top-down manner.

QUESTION AND ANSWER SESSION: Many questions centered on the comparison between the various approaches to baseline determination. One participant said determining the baseline for a project that modifies an existing plan is relatively easy, involving a comparison of the new and existing scenarios. Determining a baseline for a new plan would be more difficult because there is nothing to compare it against. One participant asked whether the Parties could produce methodologies for each type of project that could be used in calculating baseline scenarios. Michaelowa cautioned against characterizing any determination as straightforward, noting there are many complicated issues that could affect the baseline.

One participant asked if, when a country has more than one CDM project, there should be a baseline for each project or one for all projects. Michaelowa said this depends on the approach taken. Liu noted that baseline determination is a learning process that will change as Parties gain experience. He supported applying a project-by-project approach in the early stages of the CDM. Williams said that individual

projects should be considered at the current stage, but noted that this project-by-project approach incurs high costs and that a technology matrix should be used eventually. A business representative expressed his preference for the project specific approach, noting it is easier for the investor to understand. He emphasized that the investment criteria must be kept in mind when talking about financial additionality. Chair Chow asked how a baseline should be calculated in scenarios without existing emissions. For example, if a solar power plant is built in a town without electricity, what is the justification for saying that a coal-fired power plant was avoided.

One participant emphasized the CDM's two objectives: to foster sustainable development and reduce emissions. If taking the environmental effectiveness approach, then one would choose the project-based approach with high transaction costs. If sustainable economic development is the priority, it may be more appealing to take the benchmark approach.

One participant noted that using anything other than project-specific baselines would in effect establish a "ceiling." If one must take as a baseline the emissions of the entire electricity sector, then a ceiling has been imposed. He preferred a project-by-project approach and noted that the first criterion for a project should be contribution to sustainable development. When discussing modification of a power generation plant to reduce emissions, it must also be asked whether that reduction is less expensive and generates more power, or generates the same power at higher costs.

ASSISTANCE IN MEETING COSTS OF ADAPTATION (12.8): In her presentation on "Options and issues for activities related to the adaptation component under the CDM," Farhana Yamin, FIELD, highlighted the provisions of the FCCC and Kyoto Protocol that deal with financing of adaptation activities. She noted that to date the implementation of the Convention's financial provisions relating to adaptation have been limited. Regarding the value of "proceeds" she said that they could refer to the value of projects under the CDM or the market value of CER achieved as a result of the project. She noted that the value of a CER is unknown and is dependent on politically controversial decisions such as supplementarity, which is critical to the size of resource flows under the CDM. Stating that the adaptation proceeds are uncertain and unlikely to be ample, she cautioned against overloading the CDM with tasks it may not fulfill.

She said that, in the context of the Kyoto Protocol, it may be difficult to justify making definitive decisions about which country or group of countries are not vulnerable to the adverse impacts of climate change, given the current state of knowledge and the lengthy time frames involved. She suggested developing a vulnerability index that would allow objective assessment to facilitate decision making about adaptation and would ensure distribution of proceeds to address the needs of vulnerable groups.

Ravi Sharma, UNEP, discussed sharing of proceeds for adaptation. He identified four generic categories of anticipatory adaptation, including: increasing robustness of infrastructural designs and long-term investments; increasing flexibility of vulnerable managed systems; enhancing adaptability of vulnerable systems; and reversing trends that increase vulnerability. Regarding the costs of adaptation, he stressed the need for methodology that considers whether the benefits of an adaptation project outweigh the cost of implementation. He cited the challenges of funding adaptation measures as: determining the share of CDM proceeds; burdensharing of the proceeds between Parties; apportionment between administrative expenses and adaptation funds; linking the sharing of proceeds to the other Kyoto mechanisms; and coordinating adaptation activities with the Global Environmental Facility (GEF) and other Rio Conventions for effective and efficient use of funds. He concluded by calling for specific suggestions to: secure burden sharing by Annex I countries for adaptation activities linked to CDM; create links among the financial mechanisms of the Convention to ensure funding for capacity building in vulnerable countries; guarantee a level playing field with other Kyoto mechanisms; and finalize the institutional framework for operationalizing the CDM.

QUESTION AND ANSWER SESSION: The ensuing discussion focused on how creation of a vulnerability index is envisioned. One participant asked how the different factors causing vulnerability in Africa and SIDS would be incorporated fairly in a vulnerability index. Yamin said sources of vulnerability for various geographic regions and contexts must be identified. She supported the idea of a pilot phase to bring together existing information in a practical and comprehensive manner. Another participant emphasized the need to attract capital and to determine what percentage of the CER is available for the investor. Chair Chow noted the need to identify what adaptation might mean, from national policy changes to genetic engineering. One participant cautioned against incorporating the polluter pays principle into adaptability through speculation on climate change damage costs to fund and mitigate disaster through the CDM, as it would result in developing countries bearing a significant cost.

ASSISTING IN ARRANGING FUNDING (12.6): Annie Roncerel, UNDP, spoke on the CDM as an innovative financing tool for energy development. She noted that 80% of CO_2 emissions come from the energy sector, yet developing countries need more energy. She called for "greening" the energy economy with: end-use energy efficiency; renewable energy sources; and next generation energy technologies. Different solutions must be adapted to countries where: markets for private finance exist; government support is required to catalyze investment; or there is minimal or no private finance. She underscored the need for an integrated approach to defining national priorities for the CDM.

Dieter Strack discussed financial engineering for renewable energy projects. He stressed that the most important issue was the "commerciability" gap between the amount of financing needed to make a project commercially viable and the amount available. He said that financing projects in renewable energy required use of all available financial instruments to create a project-tailored mix, which will increase competitiveness of the product and the internal rate of return. Regarding public versus private financing for projects, he noted that in principle the financing structure is the same, with the exception of those using official development assistance (ODA). If publicly sponsored, ODA can be tapped directly based on bilateral financial protocols. If privately sponsored, the public authorities in the recipient countries must approve the use of ODA but are often reluctant to do so due to lack of additionality of funds. He cautioned that even if a project is entirely publicly financed, it must prove to be commercially viable or, considering the "commerciability" gap, it should be almost commercially viable. He outlined potential financial sources such as public financing to "buy down" production costs and private debt financing.

Youba Sokona, ENDA, examined development financing options for developing countries, including ODA; multilateral and bilateral loans; and foreign direct investment (FDI). He noted new options presented through the FCCC, including the GEF, AIJ, CDM, JI and emissions trading. Given the trend of declining rates of public funding, he underscored the need to consider these mechanisms for development and reviewed their ability to meet the requirement for financial and environmental additionality. He highlighted the need to examine the role of the GEF in relation to the CDM, and said it must be complementary. Regarding African needs, he stressed, *inter alia*, food security, employment security and secure financial aid flows.

Ken Newcombe, World Bank, reviewed the AIJ/JI experience in relation to funding. He noted barriers to AIJ investment in Africa, including risk, unfamiliarity with host countries and a lack of confidence, and noted that many fear that CDM will follow the same path. He underscored the importance of investment funds because they pool investments, intermingle economies where FDI has not traditionally flowed, and promote new technologies. He highlighted the prototype carbon fund, which spreads investment across a range of countries and technologies, on behalf of many companies that did not want to undertake ventures individually.

QUESTION AND ANSWER SESSION: Statements in this session focused on, *inter alia*, investment funds, the relationship between ODA and the CDM, and financial additionality. Regarding investment funds, one Party urged looking at the range of options and noted that pooling of projects can occur in other ways. In response to Newcombe's comment on investment plans, one participant said the private sector and regional groups of countries can perform that function. Another Party noted that investment funds can allow participants to implement riskier projects, but asked what incentive exists for the fund manager to include them in his portfolio unless he expects credits at a cheaper price. Newcombe replied he could envision governments and agencies who may include them and noted that the world of funds is diverse and can be tailored to specific managers. He noted that there are many barriers to involving the private sector in this process.

One participant asked if the CDM could compete with FDI and sought clarification as to whether it was compatible or competing. Newcombe responded that the CDM is a catalyst for the flow of capital, and that it should be possible to negotiate a short-run capacity project in developing countries. The difference between investing at home and investing in developing countries could be up to US$60-70 per tonne, thus providing an incentive to investors. Sokona cautioned against examining the CDM in isolation and said it could be complementary.

Regarding additionality, Sokona said that the COP must agree on a level of ODA from which the financial flows related to climate are additional and re-think how to re-use GEF money before the CDM starts in the year 2000. One participant asked if implementation of the CDM would result in declining ODA. Sokona said existing ODA must not be reduced, and called for an enabling environment for private sector investment in the CDM. A participant asked how SIDS could cooperate to amass funds and prioritize project proposals. Newcombe replied that this is a role for local development banks or other banks, such as national financial institutions, and noted that efforts by local development banks to spread risks will create a benefit for that country.

VALIDATION, VERIFICATION AND CERTIFICATION (12.5, 12.6, 12.7, 12.9), TECHNICAL AND PROCESS ISSUES: Johannes Heister, World Bank, and Einar Telenes, Der Norske Veritas, discussed verification and certification through lessons learned from the World Bank Ilumex project, audited by Der Norske Veritas. Heister equated verification with validation of a product and suggested that certification be an auditing process similar to the International Standards Organization (ISO) method. Telenes called for generic operational criteria for certification, such as ISO 14000, to detail and standardize requirements for, *inter alia*, monitoring and reporting, control of operations, training of personnel, document and data control and non-conformance handling. He emphasized that a monitoring and verification protocol is just as important as a baseline for ensuring transparent, relevant and consistent monitoring of a project. Noting that established practices of auditing are applicable to GHGs, he recommended using established methodologies to reduce transaction costs and increase transparency. He called for pilot project verification, certification throughout project lifecycles and rules to address non-compliance.

Jayant Sathaye, Lawrence Berkeley National Laboratory, discussed the monitoring, evaluation, reporting, verification and certification (MERVC) of climate change mitigation projects. Regarding what is to be monitored, he discussed: energy production and/or use, GHG emissions and carbon stocks; other environmental impacts (biodiversity, soil conservation, watershed management); and socio-economic impacts. He discussed methods for estimating GHG savings off-site, through use of: default current and/or future GHG emissions factors; GHG emissions factors based on marginal hourly or daily energy savings; or utility published GHG emissions factors. He discussed three challenges for calculating net energy and GHG savings: positive spillover or leakage, market transformation, and free riders. He also discussed the cost of MERVC and the roles of the primary MERVC actors (project developers, consultant organizations, NGOs, government agencies, and international organizations). He concluded that transparent and simple, yet effective, international guidelines are needed for MERVC and suggested that a handbook for MERVC energy-efficiency projects be developed.

Harris Gleckman, UN Department of Economic and Social Affairs, reviewed the history of the ISO work on standards for environmental management and examined possible context it may provide for considering implementation of Protocol mechanisms. He noted that ISO has a Climate Technology Task Force and is eager to involve a wider constituency. He noted that ISO has attracted attention within the private sector and that some companies apply ISO standards internally to gauge environmental performance. He identified trouble spots with the ISO standards. For example, existing environmental standards are conformance-based, not performance-based, and do not judge a company's environmental impact or performance, but rather the conformity of its management system to the ISO standards. As for the CDM, he noted options for next steps. The first option is to acknowledge that these issues are too complex to be dealt with at the intergovernmental level, and should be sent to ISO for consideration. Second, the intergovernmental process could handle rulemaking and definitions, with certification addressed separately. Third, the intergovernmental process could handle all the rulemaking, definitions and certification.

QUESTION AND ANSWER SESSION: One participant remarked that the first option presented by Gleckman was not feasible, but supported exploring options two and three and proposed establishing an informal joint working group to explore ISO's expertise. Another commented that the speaker's presentation illustrated that there are many implications for monitoring and cautioned against complicating the process.

PROPOSALS FROM PARTIES ON TECHNICAL AND METHODOLOGICAL ISSUES: CHINA underscored the principle of supplementarity, the need for the host country to decide whether a project promotes sustainable development, and the need to assist the developed countries in achieving compliance. Regarding methodological issues, he stated that funding for CDM projects shall be additional to ODA, GEF and other financial commitments of the developed country Parties under the FCCC. He also noted that the baselines for CDM projects should be done only on a project-by-project basis. The concept of fungibility among the three mechanisms is totally unacceptable.

GERMANY spoke on behalf of the EU, as well as Bulgaria, Croatia, Czech Republic, Hungary, Latvia, Poland, Romania and Slovenia. She called for preconditions for Annex I and non-Annex I Parties wanting to participate in CDM. Both must: ratify the Kyoto Protocol;

be bound by a compliance regime adopted by the COP/MOP; have not been excluded from participation in the CDM; and comply with their commitments under Article 12. The two steps she envisioned for the CDM process were the validation of the project and certification of the emissions reductions. Validation would only be given if, *inter alia*: all Parties involved have approved the project activity; all entities involved can demonstrate they are entitled to participate in the CDM; and the project participants provide a determination of baselines to the operational entity. Certification will take place only after a project has been validated.

INDIA stressed that CDM funding must be additional to ODA and the FCCC commitments. There are many pitfalls to the sector approach for baselines, as opposed to the bottom-up project approach. He said that carbon is not a commodity for exchange in transactions and that the Protocol has not envisaged any interaction between mechanisms. A CER is simply a certificate and should not become tradable. He said the CDM should be constructed to ensure that least developed countries (LDCs) get their share of CDM projects.

NORWAY spoke on behalf of Australia, Canada, Iceland, Japan, New Zealand, the Russian Federation, Ukraine and the US (the Umbrella Group). He said certification should be a two-step process: projects would have to be registered with an operation entity in principle prior to implementation; and once project activities are underway, the resulting emissions reductions or removals are certified on a periodic basis. In order to be registered, projects would have to, *inter alia*, have a credible baseline, meet all the criteria (such as the approval of each Party involved) and have adequate provisions for monitoring of project emissions. Once a project is implemented, the emissions reductions would be certified by an operational entity periodically after the reductions or removals have actually occurred. He said further work is needed on questions of compliance, linkages between the mechanisms and advantage of fungibility between the mechanisms.

SOUTH AFRICA said that the dual purpose of the CDM must be kept in mind in every step. While it holds great promise, the risk level involved in the application of the CDM is much higher for developing host countries. He said that designing the CDM to determine whether projects have helped Annex B Parties reach their targets can be accomplished, but the concept of sustainable development is not easily defined or quantified.

The US discussed benchmarking for the CDM and JI. He said there are two baseline choices: project-by-project, where a reference baseline is created for each project activity; and a benchmark, which creates a performance standard for a given sector and against which individual project activity is measured to determine additionality and assess credits. He said the electricity generation sector would be a good area for using a benchmark, but noted that questions remain regarding what level of performance it should require and how often the benchmark should be reviewed.

UGANDA recommended that the Executive Board should not exceed 25 members and be based on accepted and normal UN regional groups with due consideration to subregional balance. He suggested that the CDM operate in a "mix mode" – multilaterally, bilaterally and with a general fund – with the same rules, procedures and principles. He stressed financial and environmental additionality and that the CDM should be additional to ODA and GEF support. He noted that ongoing projects should not be converted to the CDM or JI. Noting that supplementarity is both a technical and politically controversial issue, he stated its consideration can result in a drift towards innovative technologies.

VENEZUELA noted that the host country should be the sole judge of eligibility and outlined prerequisites for project approval including identification of: the project's net contribution, short- and long-term costs, and risks and liabilities for host country, including the costs of operation. He stated that: both the host country and the participating Annex B country must approve the CDM activities before consideration by the Executive Board; baselines should be project specific and correspond to the most cost-effective option available; and that projects should in no case result in limitations, ceilings or "growth lines" by sector or any other type of commitment.

DISCUSSION: The ensuing discussion centered on ODA and the CDM, coverage of CDM administrative costs, the need for CDM benchmarks, fungibility between the mechanisms, and addressing non-compliance. One participant asked if the percentage of administrative costs of adaptation should be fixed, part of the budget or additional to the budget. He said funding to cover certification costs must be provided whatever the results of the project might be. One participant said that in the case of carbon sinks, the host country should be liable for not reversing what has been accomplished. He opposed fungibility between the mechanisms, noting that a relationship will develop between the prices of the mechanisms.

One participant noted that the private sector may find the early stages of CDM implementation risky, thereby making ODA quite important. Some participants saw a role for ODA in capacity building for CDM projects, but not for CDM projects themselves. Regarding private sector involvement in the CDM, one participant said only companies under domestic obligation to reduce CO_2 emissions should be allowed to participate. Another asked if a project could be developed by a non-Annex I country without a sponsor, whether CERs can be sold to more than one country and whether the CER recipient Party could vary from year to year.

Regarding project approval, one participant said transaction costs would be very high if each project were fully examined. Regarding the authorization of legal entities, one participant asked if a Party could authorize the participation of subsidiaries of companies and financial institutions based overseas. Another participant said that a Party authorizing legal entities must bear responsibility for them. One participant noted that the CDM provides an incentive, especially for companies that produce advanced environmental technologies, to invest in projects early and, in return, sell CERs earned. Regarding additionality and transfer of technology, participants underscored that the CDM should not substitute previous commitments. Noting that the CDM is intended to achieve commitments, not just make money, participants agreed that private entities should be defined.

WORKING GROUP ON THE CDM: Gylvan Meira Filho (Brazil), Cornelia Quennet-Thielen (Germany) and Brian Fisher (Australia) facilitated the working group on the CDM. Discussions in the working group centered on the terms of reference of the Executive Board and on reference/baseline methodologies and additionality, validation, verification, certification and funding and adaptation.

The need for further work on methodologies and clear rules for project eligibility was highlighted. A number of participants stressed that the rules, modalities and procedures for the CDM should be simple and environmentally credible, and underscored that the CDM should not focus on profits but on emissions reductions. Another cautioned against oversimplifying the rules for the CDM, as this would weaken its developmental objectives. Participants addressed the need to: distinguish between the CDM and other projects; minimize transaction costs when designing CDM projects; distinguish between certifying project activities and certifying emissions; and seek guidance from the COP/MOP on the elaboration of the modalities and procedures.

Regarding the baseline methodologies, participants inquired as to the extent to which sustainable development components should be included. One participant proposed that each host country identify sustainable development indicators relevant for each project. Another noted the difficulty of developing exhaustive lists of sustainable development indicators. Noting that the sustainability of the CDM can only be gauged at the end of the project, one participant highlighted the need to create a sense of ownership within the host country and recommended involving local communities.

With regard to the need for predefined baseline methodology, one participant objected to using top-down approaches of defining general baselines for an entire sector or country and said that the perimeter of the baseline should be the same as that of the project activities. A number of participants objected to the suggested use of economic indicators in baselines to determine CDM eligibility, noting that this is very complex and would put the Executive Board in the role of analyzing the potential profitability of individual projects.

On baseline setting, one participant raised the need to devote attention to the indirect effects of baseline selection on national policies and regulatory regimes, noting that a host country might implement policies to increase returns, which may lead to higher emissions. One participant said that an agreed upon baseline would reflect the objectives of both Parties involved in a CDM project. Another participant noted that defining baseline methodology against conditions for additionality would be very bureaucratic. She preferred definition of various methodologies for baseline creation, noting that one method would lead to environmental stringency. On project-by-project benchmarks, one participant cautioned that the quest for transparency could lead to higher transaction costs. He proposed that project registration or validation and sustainable development determination be left to the host country.

Proponents for dynamic baselines argued that they would create continuous pressure for investment. They said that static baselines could increase the uncertainty for the investor. Another participant argued that dynamic baselines could lead to temptations to institute changes to meet an elusive objective. He advocated for review of baselines and cautioned against confusing it with the concept of dynamic baselines. Another participant noted that, for investor certainty, there must be a baseline estimate, but that a baseline might change over time. Another asked whether, if a project only runs at 60%, a baseline should be recalculated to reflect that the project is not operating at 100%. One participant objected to periodic revision of the baseline, noting that unexpected events that come later cannot have the retroactive power of modifying a decision taken earlier. Such revision could lead to data manipulation. One participant stated that baselines must be static because these are necessary for the determination of the GHGs mitigated. He added that, if there is need to adjust the carbon offsets, then insurance, penalties and securities must be considered as guarantees to Parties involved.

On additionality, one participant said there was a need to add investment additionality and regulatory additionality to the criteria for baseline determination and noted that private FDI projects risk overloading CDM. Some participants supported consideration of investment additionality stating that this would be useful in determining whether a project contributes to sustainable development and would allow "no regrets" investment to take place. They stressed that FDI should not lead to an increase in emissions and that companies should be encouraged to do more. Another participant sought clarification on whether two types of additionality would be necessary for the CDM and JI and asked if there was a possibility of a common definition.

One participant identified two ways of using baselines: to qualify a project and determine its eligibility; and to quantify the CERs. He noted even if Article 6 (JI) does not require congruence with Article 12 (CDM), there should symmetry between the JI and CDM baselines. He noted that, in any case, a first step of certification is the definition of a baseline. Two steps in the CDM process were identified as: checking the criteria for eligibility and certifying the emissions reduction. The stage before certification is a very qualitative judgement on whether a project meets the criteria established for the CDM, whether it is consistent with international agreements, and if there is sufficient monitoring. In principle, certification should happen before the implementation of the project. Certification or validation of the CDM project will remove most uncertainty surrounding the project and reduce risk.

Regarding when certification should take place, one participant suggested that this be left to the Parties initiating the project to decide on and noted that certification of the emissions reduction can take place only after the reduction has taken place. Another said that the certificate of validation for CDM activities must be obtained before the project begins, otherwise trying to retroactively validate a project would incur high costs.

With regard to registration, one participant noted that there would have to be a registry for the projects that are validated and one for the emissions that are certified. He cautioned against confusing registration with validation, certification or emissions reduction certification. A question was raised if when two Parties have reached agreement on a CDM project, they would have to wait for registration and validation from the Executive Board before proceeding with the project. On the timing of validation, it was observed that a project developer might prefer to receive it earlier in the project, as it could be risky later. He suggested that rather than mandating the time when validation is to be conducted, information on the possible risks of late validation could be provided.

On early action, one participant said that investors in early action schemes run the risk that the COP/MOP may refuse to recognize their activities. Another participant illustrated two scenarios: the optimistic scenario whereby the rules for the early start are approved at the next COP; and the less optimistic scenario where the final rules are not approved at the next COP. In the first scenario, CERs will be certified after the year 2000, while in the second scenario there will be a transitional period leading up to the entry into force of the Protocol and thus the reductions will have to be validated retroactively. He said that those who carry out early action schemes would have to meet the costs of retroactive validation. One participant emphasized the need for transitional rules for the early start of the CDM. He proposed differential use of terms such as registration before the rules and validation after the rules are established.

On the terms of reference for the Executive Board, participants proposed that the Board: review and update an indicative list of suggested methodologies for particular project types; determines the guidelines for baselines; and supervise the development of baseline methodologies. More work to establish linkages between the different approaches proposed to the development of baseline methodology was urged. One participant raised a question about work in the initial period leading up to the entry into force of the Protocol when the Executive Board will be established.

On independent auditing and verification, one participant proposed that the operational entities conduct this themselves. Another participant objected stating that auditing should be conducted independently of the operational entities. The need for clear designation of an independent entity to audit and verify the project separate from the project

proponent or implementing entity was voiced. The need to ensure total professional independence of third party entities undertaking validation was stressed.

One participant said that interested transnational and national companies could participate in the CDM. The need to balance bureaucracies, costs and results as well as uncertainty was emphasized. Regarding funding of CDM projects, one participant proposed that it be arranged after certification of the activity. Noting difficulties with involving the private sector, another underscored the importance of a fund for the early stages. She asked if the adaptation fund would be centralized for all countries or only for non-Annex I countries. She said host countries could contribute a symbolic share of project investment. One participant noted the need to determine what adaptation projects will be eligible for funding and to assess vulnerability. Another proposed that the vulnerability assessment could be one element in project assessment and noted that a theoretical vulnerability assessment followed by a concrete assessment seemed repetitive.

Emphasizing the importance of the adaptation fund for developing countries, one participant underscored the need to determine what share of CDM proceeds should go into the fund and how they should be split between administrative and adaptation costs. Another asked how the percentage of CDM proceeds for adaptation would be captured and remarked that the investor would need to receive credit for the percentage given to adaptation and should not be penalized by the redirection of funds.

The need to determine what eligible administrative costs are and how funds will be shared was raised. A participant cautioned against bringing ODA into the discussion. Money for the special adaptation fund should be reliable and not dependent on the market. Another said indicative lists of priority projects could be useful in distributing funds and said that emissions trading and JI should also render adaptation funds.

A developing country participant asked if adaptation funds earned from a project would go directly to the host country or to a general fund. Another advocated a high volume of CDM projects to generate a high level of proceeds, keep administrative costs low and ensure environmental integrity. One developing country noted that a high "adaptation tax" would result in lower investment flows to developing countries because countries could bear part of the tax. Participants emphasized the need to: keep administrative costs low to keep the CDM attractive; generate a high volume of projects; cooperate to pool resources; and increase cost effectiveness. They acknowledged that a large volume of CDM projects could diminish the value of CERs.

In summarizing the discussion, Co-Chair Quennet-Thielen noted that a number of participants: expressed the need to separate the CDM from ODA; stated that there should be no additionality requirement on the private capital flows; identified the need to address baseline setting in the short and long term; and recognized the possible role of the Executive Board in supervising entities involved in CDM and providing guidance on methodologies. She said that a general agreement was emerging that a host country is the best judge on a project's contribution to sustainable development. She highlighted the need: for consistency with Protocol language; for demonstrated approval by Parties of the certification criteria; and to address baseline methodology. She noted differing opinions as to whether baselines should be static or dynamic and said Parties would need to demonstrate that they have procedures for monitoring CDM projects. Regarding the timing of certification, she noted that several participants preferred to see it done before project initiation.

Concerning who should do work during the first phase, she recalled many participants had said this was the responsibility of the operational entities, although some proposed the involvement of the Executive Board. As for CERs, there were diverging views regarding their sale or use for compliance with some suggesting that they should be shelved. She underlined the need for further work on the CDM interim phase, noting that a number of participants were in favor of an early start. She noted the need for different sets of rules for the early start period and for the post COP/MOP period.

ARTICLE 6 - JOINT IMPLEMENTATION

OVERVIEW: Lubomir Nondek provided an overview of Article 6 projects, and identified major remaining problems as: the relationship between Emission Reduction Units (ERUs) credited and the total project performance; the influence of baseline methodology on the resulting project performance; the lack of definition for the role of host country government and legal entities in verification; and the lack of clarity surrounding "additionality" and "supplementarity" requirements. He called for: review of all existing AIJ projects to provide a real-life background for discussions; adoption of a simplified approach to baseline construction, leaving the host country to determine amount credited; and elaboration of a legal and institutional framework for the transfer of the ERUs credited.

Edward Helme, Center for Clean Air Policy, discussed options for determining baselines and additionality for JI projects. He noted that a high baseline is not desirable for both implementing and host countries. He emphasized the importance of a good data system when determining additionality, noting that if one does not exist it is an issue of international concern. He identified two approaches for defining additionality: developing JI rules as identical to those needed for the CDM, with benchmarks and project-level analysis; and establishment of automatic additionality based on top-down baselines for countries in compliance with Protocol Articles 5 (methodological issues), 7 (communication of information) and 8 (review of information), and stricter addtionality tests for countries not in compliance with these articles.

QUESTION AND ANSWER SESSION: The following discussion focused on: how to calculate additionality for countries with economies in transition (EIT countries) that are EU candidates; how to address ERU crediting in situations of non-compliance; whether ERUs from a JI project could be transferred if both countries were not in compliance; the risk of trading and investor liability involved in JI and emissions trading; and the comparative transaction costs of JI and emissions trading. Helme emphasized the importance of an adequate data system to verify achievements. One participant noted that transaction costs associated with emissions trading are lower than those associated with JI. In response, Helme noted that establishment of emissions trading mechanisms are costly.

REFERENCE CASE/BASELINE METHODOLOGIES AND ADDITIONALITY (6.1 (B)), VERIFICATION AND REPORTING (6.2), TECHNICAL AND PROCESS ISSUES: Jane Ellis, OECD, discussed lessons from AIJ pilot phase projects involving EIT countries. She said that while national guidelines for calculating emissions baselines exist in some host countries, there is no international guidance. She noted the limited geographical distribution of AIJ projects and said that a majority of the projects are replacement projects in the energy sector. She stated that additionality definitions varied widely among the projects. On replacement projects, she noted inconsistency in baselines and attributed this to divergent assumptions and perceptions of what is valid. In order to improve the reporting of emission baselines, she proposed: more precise sector disaggregation; separate reporting of sub-projects; separate reporting of non-operations projects; provision of references such as detailed baseline studies; use of common accounting formats for emission benefits; and clarification of what carbon stocks are included in biotic projects. On methodological improvements, she called for consistent

methods to: determine project timelines; include safety margins; and give guidance for "greenfield" projects, accounting benefits for energy efficiency measures and definition of system boundaries. She noted that project specific baselines need detailed data and stated that current baseline reports are often inconsistent, incomplete and not transparent. She stressed that the AIJ experience from the pilot phase is insufficient as a basis for JI and CDM methodology. Baseline rules setting will determine environmental integrity and significance of JI and the CDM.

Matthew Mendis, Alternative Energy Development, Inc., discussed "Developing greenhouse gas mitigation projects and defining baselines." He stressed that the CDM and JI are not aimed at changing macroeconomic policies, regulations or institutions, but are intended to facilitate investment in project activities that will result in: voluntary participation; real, measurable and long-term benefits; additional reductions of GHGs; and assistance for non-Annex I countries in achieving sustainable development. He outlined the CDM project cycle and remarked that it is not different from other project development except that it had CDM validation. He identified baseline definition as one of the key elements of validation. He proposed that the ultimate responsibility for the determination of a baseline lie with the host country. In defining baselines, economic optimums as well as current trends in technology and practice should be considered.

QUESTION AND ANSWER SESSION: In the following discussion, one participant noted that when considering greenfield projects in developing countries for the CDM, benefits such as international collaboration and government endorsement should be considered in addition to economic benefits. Mendis said that proposed cost-effective projects should be undertaken anyway without being CDM projects.

PROPOSALS FROM PARTIES ON TECHNOLOGICAL AND METHODOLOGICAL ISSUES: GERMANY, on behalf of the EU and others, cited criteria that Parties must meet in order to undertake activities under Article 6, including that they are bound by a compliance regime, have ratified the Protocol and comply with reporting requirements under the Convention and Protocol. She said both public and private parties should be able to participate without modifying Annex I countries' commitments under the Protocol. She noted two stages of validation and certification, with the validation stage including determination of a baseline and provision of information for accurate and systematic monitoring. Regarding certification of emissions reductions, she said certifiers must be economically and institutionally independent from institutions undertaking JI. She said Parties should report on these projects annually and, in addition, report on the projects in national communications. She said additional guidelines should be subject to regular review, starting no later than 2012 and in regular intervals thereafter.

JAPAN supported the creation of guidelines to ensure smooth and consistent implementation of Article 6. She said project eligibility requires the approval of Parties involved and a reduction in emissions or an enhancement of removals additional to any that would otherwise occur. She called for ERUs equivalent to one metric tonne of CO_2 with serial numbers identifying the Party of origin, the time of issuance and a project identifier. She proposed that Parties develop registries to record ERU holdings, transfers and retirements and that these registries be publicly available. Regarding reporting and verification, she said both hosting and investing Parties should provide annual reports under Article 7, and review under Article 8 of the Kyoto Protocol. She said in cases of non-compliance, reporting and verification might be accomplished on a project-by-project basis with the goal of limiting transaction costs and enhancing transparency.

WORKING GROUP ON JOINT IMPLEMENTATION: This working group was co-chaired by Ole Plougmann (Denmark) and Alexander Metalnikov (Russian Federation). During the discussions, participants debated, *inter alia*, whether and/or how the COP should develop guidelines for JI projects, whether the language of Article 6 indicates an additionality requirement for JI projects, and approaches to verification and reporting.

Regarding guidelines, a number of participants remarked that Article 6 authors had foreseen the need to regulate and underscored the importance of safeguards and oversight, noting that national communications are not always comprehensive and accurate. Some pointed out that the Protocol states that Parties "may," as opposed to "shall," develop guidelines, thereby leaving it to their discretion. Noting that there is no indication that the JI activities should be subjected to external verification, one participant expressed concern that one project-based mechanism is subject to scrutiny while the other is not. He suggested that aspects of Article 12 be incorporated into JI guidelines. Others noted a fundamental difference between JI and the CDM, in that the CDM generates new units, which increases the assigned amount budget, while JI credits come from the assigned amount of Annex B Parties. Another said checks and balances for JI exist in the form of national communications.

Delegates debated at length whether additionality requirements were applicable to Article 6 projects. One participant noted that industry groups do not support additionality, but said it is important to the host country, whether required or not. Another stated that Protocol Article 6.1(b) requires emissions reductions resulting from a project to be additional to those that would have occurred normally and questioned what the value of the projects would be if emissions reductions would have occurred anyway. Some participants remarked that without additionality, JI was no different from emissions trading.

Other participants stressed that there are no additionality requirements in Article 6 nor references to share of proceeds. Some said that imposing such additionality would compel companies to choose emissions trading rather than JI. Others stressed that additionality was not necessary if a Party was in compliance with Articles 5 (methodological issues) and 7 (communication of information).

Regarding verification and reporting, participants considered whether a one- or a two-stage approach is better. The proposed two-stage approach consists of a validation stage prior to certification. The validation stage would include Party approval, determination of a baseline and provision of information for accurate and systematic monitoring. One participant opposed a two-stage approach, noting that it is not necessary for JI, and would result in turning ERUs into CERs. One proponent of a two-stage approach said Article 6 projects should meet a number of criteria, including: approval of all Parties and legal entities involved; provision of information regarding determination of baselines; and demonstration that reductions are real, measurable and long-term. She said the first stage of validation ensures that Parties acquiring ERUs are in compliance with Articles 5 and 7. Another participant said that, hypothetically, the host country in a JI project would give consideration to the implications for national emissions. One participant said experience with JI projects shows that the main problem lies in calculating the baselines and proposed a process using agreed upon methodologies for best results. Another participant said rules for the CDM could guide JI, but should not be mandatory. In summing up, Chair Chow noted the need to find the balance between cost effectiveness and environmental integrity.

ARTICLE 17: EMISSIONS TRADING

OVERVIEW: Erik Haites, Margaree Consultants, Inc., provided an introduction to emissions trading. He discussed how emissions trading would reduce costs and noted his assumption that allowances would be allocated to participants at no charge. An emitter with low control costs can reduce its emissions below the quantity allocated and sell the extra permits. If the market price is higher than the cost of reducing the emissions, it earns income from the extra reductions. An emitter with high control costs that needs additional allowances can buy surplus permits from other sources. If the market price is less than the cost of controlling emissions at its own facilities, it saves money.

Regarding compliance, he noted that each participating source must hold allowances equal to its actual emissions and that accurate monitoring and reporting of actual emissions is essential for environmental integrity. Like any environmental regulation, compliance must be enforced if the environmental goal is to be achieved. Haites noted that penalties for non-compliance must exceed the financial gains from non-compliance. This could require loss of permits plus financial penalties. To work well, emissions trading requires a competitive market for the allowances, which means a large number of buyers and sellers with no single buyer accounting for a large share of total purchases. He concluded that GHGs are well suited to emissions trading from an environmental perspective and the potential cost savings are large (50 to 80%). The main issues outstanding in implementing Article 17 are: liability arrangements to provide an incentive for compliance; possible market power by a large buyer or seller; implementation of supplementarity provisions; and treatment of "hot air."

QUESTION AND ANSWER SESSION: Discussion in this session covered a range of issues, including: the participation of legal entities and non-state actors; entitlements to credits; fungibility of CDM credits; supplementarity; and reporting requirements. Participants also addressed providing incentives for compliance, rather than penalties for non-compliance. In response to a question regarding participation of non-State actors in the trading regime, Haites said that legal entities would participate in two ways, as brokers or as buyers and sellers. Another participant noted that if legal entities are excluded, there would only be 39 Parties to trade. A business representative stressed the importance of the issue for industry and requested its inclusion in the agenda for the upcoming subsidiary bodies meeting.

One participant raised questions regarding the basis for the determination of holdings of allowances for emissions trading and stressed that the speaker's presentation had presumed certain holdings and ownerships. He noted that the Protocol includes the concept of market based mechanisms, but this does not imply a creation of the requisite right to hold such allowances for the purposes of exchanges. Another participant noted that assigned amounts have been indicated as provisional rights and questioned if this is morally correct. This approach puts polluters in the position to make money, even though they are the ones responsible for the problem. The speaker said the reductions should be characterized as "savings" rather than "profits."

One participant asked if the 50-80% savings figure cited by Haites assumed that the CDM is fungible with other mechanisms. If so, that would increase global demand for CDM projects, since they would generate tradable reductions. Concerning fungibility, one observer noted that Protocol Articles 3.10 and 3.11 allow Annex I countries to acquire CERs from the CDM, but do not imply that they would be transferred again. With emissions trading, he said the fungibility issue should be treated carefully. Participants also asked: if the speaker assumed the prices were the same with or without supplementarity; if compliance costs would go down in the second period because of increased investments; and whether the speaker envisaged a yearly stocktaking and, if so, whether countries would be required to reduce by a certain amount each year.

One participant inquired about the leading models for forecasting and the possibility of the COP placing them on-line to reflect changes in markets to enable better decisions by Parties. Another noted that emissions trading is intended to cut costs for Annex B countries subject to supplementary, and questioned the need for trading on a global scale. Noting that CDM activities could begin in the year 2000 while Article 6 activities could not, one participant questioned whether the model took into account the difference between the mechanisms. He said the difference affects competitiveness, fungibility and comparative advantage between mechanisms. The speaker noted that the time frames would affect the market mechanisms and noted that most models operate on five- and ten-year time frames. Recalling that there is to be sharing of proceeds for CDM, one participant asked what that sharing will entail, what the link between the two mechanisms is and how non-Annex I Parties would trade them. Questions were also raised on compliance reserves, an annual surrender and eligibility requirements for trading.

DESIGNING AN APPROPRIATE INTERNATIONAL FRAMEWORK FOR EMISSIONS TRADING, INCLUDING VERIFICATION REPORTING AND ACCOUNTABILITY ISSUES: Jan Corfee-Morlot, OECD, discussed monitoring, reporting and review under the Protocol and focussed on: Article 3, which provides elements of the accounting system that allows a country to choose a base year other than 1990; Article 5, which sets out monitoring requirements and identifies IPCC methods with the possibility of "appropriate adjustments" to be used for monitoring; Article 7 on reporting to demonstrate compliance, which calls for annual inventories, periodic communication and supplemental information to demonstrate how to ensure compliance; and Article 8 on the review to assess implementation, which calls for expert review of national inventories and communications.

She said that national systems for inventories provide a basis for review and should result in quality information to establish compliance and assessment. Aggregate national inventories that will show the performance of Parties would only be available by the end of the first commitment period. She stated that the interpretation of Article 5.1 (national inventories) should be closely linked to the "good practice" work of the IPCC, which consists of elements on: institutional arrangements; choice of methods for GHG estimation; data collection procedures; and expert review, evaluation of uncertainty, quality assessment and control.

Annie Petsonk, Environmental Defense Fund (EDF), presented case studies and practical experience in reporting, verification and accountability. She said that environmental markets at international and national levels could improve environmental performance through compliance with total emissions limitation requirements, as well as cut costs and provide flexibility. She said that emissions trading and related market instruments can drive entrepreneurial forces towards innovation of cheaper, faster and better ways for emissions reductions and preserve full sovereign discretion.

She identified the key elements in constructing reporting, verification and accountability systems as: promoting measurements to design systems that encourage quality, integrity, fungibility, consistent rules that do not change radically without prior notice, and transparency. She addressed types of verification in general and as required for the Protocol, and noted that self-verification or verification through market systems such as ISO 14000 were insufficient, as the Protocol will require independent verification of total emissions performance.

She detailed accountability rules whereby a country that exceeds its assigned amounts can: have deductions made from the next budget year; have automatic mandatory discounting of all non-tendered assigned amount units (AAUs) transferred; or Parties can meet and decide on a penalty for the non-complying country.

QUESTION AND ANSWER SESSION: The discussions centered on the feasibility of accountability rules for non-complying parties, the time lag in provision of emissions information, crediting of early action schemes and the applicability of experiences drawn from emissions trading in SO_2 reduction.

One participant noted the difficulty of reporting national emissions in the absence of a mechanism that retires a portion of assigned amounts on a regular basis, or without considering buyer liability to encourage countries to purchase carefully. He questioned the value of such reports considering that emissions data comes two years after the year in question and possibly after the budget period is over. Regarding whether the accountability rules that require deduction of excess emissions from the second budget period, a number of participants inquired whether the second budget period commitments would have to be negotiated before the first budget period. In response, attention was drawn to the fact that the Kyoto Protocol calls on Parties to start consideration of the second budget period in 2005.

One participant said a compliance regime that is mainly based on a system of borrowing from future commitments may reduce mutual confidence between Parties as it would allow Parties to indefinitely postpone emissions reductions. Another participant stressed the need to look at compliance issues associated with mechanisms separately from compliance with targets in the Protocol. The problem of early crediting of activities that may not receive COP/MOP approval was also raised. Petsonk stressed the need for rigorous accountability of emissions and transfers if trading is to start early.

DESIGN OPTIONS FOR EMISSIONS TRADING, INCLUDING VERIFICATION, REPORTING AND ACCOUNTABILITY ISSUES - PANEL I: Peter Bohm, Stockholm University, focused on market power, supplementarity and "hot air." He discussed whether efficient emissions trading is threatened by market power by using a "worst case" example, wherein a single buyer determines all his purchases at a single market price in a period. The buyer then withholds demand and thus lowers the price. This results in an inefficiently small trade volume, where the sellers lose and the buyers win. He said that significant use of buyer or seller market power is unlikely in continuous emissions trading among governments and that even an attempt to exert market power was unlikely. Regarding binding supplementarity, he noted that abandoning free trade raises the aggregate cost for attaining the emissions reductions agreed in Kyoto. It could also reduce Parties' willingness to make stringent commitments for future periods and reduce the willingness of new countries to join Annex B. On the other hand, binding supplementarity would mean higher carbon emissions prices in buyer countries that would stimulate the development of new and less costly abatement techniques.

Michael Grubb, Royal Institute of International Affairs, discussed liability, supplementarity and other issues in emissions trading. Regarding accountability in international emissions trading, he noted the need to separate the question of governmental commitments from the need to include industries. The system of accountability could work if the COP/MOP only considers government actions and governments individually determine how they will involve industry. The COP/MOP must make sure the government-to-government component is valid and credible. He said that the opponents of supplementarity, or constraints on imports of reductions, argue that such a policy would raise the costs of compliance in the first commitment period. He thought the arguments for supplementarity were stronger and stated that it encourages more consistent leadership by richer countries, puts their emissions on declining trajectories, and induces greater innovation. He presented options for implementing supplementarity: establishing a "concrete ceiling" on the percentage of a Party's assigned amount that can be imported; defining a non-binding guideline; making imports conditional on the adoption of specified policies and measures; and allowing imports related to an assessment of aggregate impact of domestic policies and measures.

QUESTION AND ANSWER SESSION: Many of the questions focused on, *inter alia*, the treatment and impact of "hot air" on the Kyoto Protocol process and the costs of technology. In response to questions regarding "hot air," Grubb reiterated that negotiators should consider its overall impact on the Kyoto process. He questioned what would happen if an allocation proves to be excessive when compared with the "business as usual" projection and the country's emissions had naturally decreased to 80% of the 1990 levels. Could the country sell that 20% allowance that was never needed?

One participant questioned the assumption that prohibiting trade in "hot air" would result in it being banked and remaining available. She said this incorrectly assumes that delegates would not take this excess into account when negotiating the second round of targets. Other participants asked: if "hot air" would be addressed by Protocol Article 3.6, which allows flexibility in implementation for EIT countries; what counts as a climate-related policy that lowers emissions and what counts as "hot air;" and should Parties develop a legally-agreed definition for the concept of "hot air." One participant proposed dealing with "hot air" by allowing JI to begin early, but beginning the actual emissions accounting in the commitment period itself.

One participant called for a focus on the implications of transfers and noted that, if one assumes that all offsets are used by other Annex I Parties, the transfers would amount to about US$40 billion a year and would exceed four times the current level of FDI. Grubb noted the importance of numbers for providing a quantitative perspective, but cautioned against relying heavily on them since the models need further work. He noted there was a possibility that the costs may turn out to be much lower than indicated by the models and said the history of energy forecasting has been unreliable.

DESIGN OPTIONS FOR EMISSIONS TRADING, INCLUDING VERIFICATION, REPORTING, ACCOUNTABILITY AND LIABILITY ISSUES – PANEL II: In his presentation "Registries — A basic building block for the success of the Kyoto Protocol," Edward Helm, Center for Clean Air Policy, detailed the use of data reviews, expert reviews and inventories in keeping track of all transactions between Parties, between legal entities, and between entities and Parties. He stressed that these were basic, technical and non-controversial elements of the Protocol monitoring and compliance system that can track and provide information on AAU transfers, regardless of what system of emissions reduction a country or the COP chooses.

He described the working of the registry and noted that it provides public information to facilitate and increase the integrity of trading and help minimize compliance costs. He distinguished between compliance accounts for those liable to meet targets with given allowances and general accounts for brokers who have no liabilities but hold allowances for companies or are involved in trading transactions. Regarding who will operate the registries, he said that a secretariat or private contractor would operate a single international computerized registry. He stressed the need for consistency and compatibility between all the registry systems. In conclusion, he underscored the importance of registries in facilitating the development of emissions

markets by: providing evidence that a seller has AAUs for sale; identifying who has AAUs; indicating the level of trading activity; and encouraging the development of better data systems.

Frank Joshua, UNCTAD, presented an overview of the "Plurilateral GHG Emissions Trading System" project. The aim of the project is to promote consistency between domestic trading programmes with the international emissions trading system by enabling sharing of experiences on relevant international aspects of emissions trading programmes, strengthening coordination among domestic emissions trading programmes and providing training and capacity building. He stressed the need for coherence and consistency in the way domestic programmes evolve and the work of the COP. He identified three approaches to GHG emissions trading: the multilateral approach; the bilateral approach, based on the establishment of a series of domestic programmes in a number of countries and on related bilateral trading agreements; and the commercial approach based on private commercial agreements. He said that it was essential to understand the links between domestic programmes and how they might affect the multilateral system. He stated that the challenge to be addressed in the UNCTAD project is to identify the key international aspects of domestic emissions trading systems.

QUESTION AND ANSWER SESSION: Discussions centered on the expected outputs of the UNCTAD project, the implications of domestic emissions regimes on the design of an international emissions trading system and the inclusion of pricing information in registries. One participant sought clarification on the use of the results. Joshua said these are meant to facilitate the negotiation process and would be made available to governments to use as they wish.

Regarding registries, participants inquired about the reason for not including information on prices noting that such information may be advantageous to governments. In response, Helm stated that governments may choose to include pricing information. Another participant said that choosing not to provide pricing information could conceal situations whereby governments provide subsidies under the cover of emissions reduction. It was mentioned that prices may not be transparent where there is devolution in terms of trading and, that even if disclosed, uncertainty will remain as to the whether they represent the actual prices.

DESIGN OPTIONS FOR EMISSIONS TRADING, INCLUDING VERIFICATION, REPORTING, ACCOUNTABILITY AND LIABILITY ISSUES – PANEL III: Nick Aldridge, International Petroleum Exchange (IPE), focused on the role, features and benefits of exchanges, which he defined as "safe places" that trade standard contracts. For emissions trading, they could, *inter alia*, define the carbon unit and permit, how it will be delivered and how rights are transferred. There are two types of trading: open outcry, which involves face-to-face trades; and electronic trading, which is conducted over computer networks and allows a far wider audience to access the market. Exchanges are "safe" because most are regulated by law and can employ sanctions, such as fines and suspension of trading rights. Exchanges can be used to trade futures and options, as well as spot transactions (such as power exchanges and natural gas hubs) and can also provide price risk management and trading. The benefits of exchanges include risk management, price discovery, supply pricing flexibility, liquidity and no counter party risk. It also offers global access, which would be important for emissions trading and imposes no barriers to entry. He stated that as soon as a framework is established, IPE would launch emissions futures.

Garth Edwards, Natsource, discussed the role of the broker in emissions trading. The broker matches the buyer and seller, and finds the right price, quantity and settlement terms for counter parties. The broker also develops a transaction structure that reduces price risk and helps capture opportunity. Regarding the market for GHG emissions, Edwards said there are an increasing number of transactions and major portfolios being developed. He said that GHG transactions are essentially an insurance policy for emitters. He described the current state of GHG trading activity including North American transactions and portfolio building and internal trading by BP, Royal Dutch Shell and others. Current sellers, from Annex B, include companies engaged in landfill/coal mine methane capture, fuel switching or re-powering, capacity upgrades and plant efficiency improvements. Other sellers include CDM projects related to forest sequestration and renewable energy and JI projects. Current bids to buy are from Annex B emitters, such as power generators and marketers, chemical industries, steel, metal and cement producers.

QUESTION AND ANSWER SESSION: Discussion centered on buyer and seller liability, the nature and origin of credits that will be traded and the range of contingencies involved in transactions. Regarding Annex B offers to sell, one participant asked what basis they had for "putting credits out for sale." Edwards clarified that what is being bought is the right to claim credit at a later stage. Credits are sold in anticipation of an assigned amount by a government. Some producers predict they will not be exempt from having to make reductions. Others may think that they have a strong claim to credits to offer. One participant asked for clarification as to what would be exchanged: emissions allowances in the context of Article 17 and/or credits generated under CDM and JI projects. She noted that buyer liability is written into Article 6 of the Protocol and added that buyers will have uncertainty as to whether the Party from whom credit is bought will be in compliance at the end of the commitment period. Another participant recommended re-reading the Protocol, because it consistently refers to commitments, which are obligations to be fulfilled at some point in the future.

One participant asked whether buyer liability increases the transaction costs, if it would create a disincentive to trade and whether markets could deal with uncertainties at an acceptable cost. Aldridge replied that if the international process results in a "buyer beware" situation, buyers would not trade. Edwards expected buyers to trade on such a basis, but said the process would become more complicated. Many participants questioned whether buyer liability would deter trading and debated whether all traders systemically incur liability when engaging in a foreign transaction. Aldridge noted that much trading is done anonymously, but said that a company with poor credit limits and consistent defaults would not be allowed to trade at an exchange. It was noted that several countries have had serious economic problems this year, but because the sovereign debt is weaker, it does not add to the transaction costs when trading in debts. Edwards noted that in a perfect world the price would not increase, but that GHG markets are not the same as debt markets. Currently, the GHG buyer has to spend a lot of time investigating the product, whereas with debt such information can be found easily.

SPECIAL SESSION ON REGISTRIES FOR EMISSIONS TRADING: Peter Alsop, New Zealand Ministry of Commerce, and Jennifer Macedonia, US EPA, outlined a possible GHG registry and discussed its background, purpose and system design. The registry would keep track of adjustments to initial assigned amounts in order to determine compliance at the end of the commitment period. It would also provide publicly accessible information to facilitate and maintain integrity of trading and promote transparency. The basic structure would employ a computer database that contains accounts for all holdings of: assigned amount acquired or transferred through emissions trading; CERs generated from CDM projects; ERUs acquired or transferred through joint implementation; and increases or decreases of carbon stocks. A tradable unit would be one metric tonne of CO_2 equivalent emissions with a unique serial number. There would be at

least one account for the Party's holding at the government level. The registry would track official changes to the holdings. The experts also presented a registry prototype that illustrated how an entity-to-entity transfer would work.

QUESTION AND ANSWER SESSION: When asked how the registry would reconcile the changes that occur on stock exchanges, the experts replied that each transaction would have to be processed through national registries. They also noted that if an ERU is created, an AAU would have to be subtracted. Questions were also raised regarding the level of transparency, whether information on implementation would be included, how to track forward trades, and the need for a global registry.

PROPOSALS FROM PARTIES ON TECHNOLOGICAL AND METHODOLOGICAL ISSUES: CHINA stated that the transfer of emissions reductions under Article 17: does not bestow rights or entitlements to Annex B Parties; should be supplemental to domestic actions for the purpose of meeting quantified emissions reduction commitments; should be conducted between and among Parties included in Annex B; and will bring about real and measurable benefits related to the mitigation of climate change. He said that transfers could be affected through a bilateral and multilateral arrangement between and among Parties without creating a new international business transaction regime.

GERMANY, on behalf of the EU and others, said that any part of an assigned amount transferred should correspond to the actual emissions reductions resulting from domestic mitigation efforts. She said that only Parties that have ratified the Kyoto Protocol should be eligible to participate. Legal entities may be authorized to participate in emissions trading under the responsibility of an Annex B Party that: has established and maintained a national system for accurate monitoring, verification, accountability and allocation of parts of AAUs and whose commitments will not be affected by the participation of the entities. She highlighted the following as issues requiring more attention: how to ensure environmental effectiveness; how to ensure transparency, accessibility and verifiability; whether AAUs should be retired annually; and how emissions trading can serve as an incentive for compliance.

SOUTH AFRICA stressed the need for a certain degree of interchangeability between the mechanisms. He reiterated that no new structures should be set up to manage the mechanisms, noting that existing institutions and structures are sufficient.

SWITZERLAND stressed that an emissions trading system must be as simple as possible. She highlighted the quality of inventory data and said the risk of overselling and fraud were central issues in developing a system of accountability for trading. She proposed using a post-verification trading approach because it is the simplest, most predictable and most environmentally credible. In a post-verification system, overselling is impossible and there is no need for liability stipulations. This system allows Parties to trade only the excess of assigned emissions over actual emissions. Certificates for these excess units could be issued annually to each Party by the Secretariat if the Article 8 review process raised no question of implementation related to the quality of the emissions inventory. She said that Parties who are issued AAU certificates could choose to retain them for ensuring compliance with their obligations under Article 3 or trade them.

The UMBRELLA GROUP stressed the importance of defining a standard tradable unit equivalent to one metric tonne. He stated that Parties found not to be in compliance with obligations under Article 5 or 7 and not maintaining a national registry may not participate in emissions trading. He said that each Party has the discretion to allow entities to participate in trading with the authorizing Party responsible for the entities and for the fulfillment of its obligations under the Protocol. With regard to registries, he said that these should contain publicly accessible records on holdings, transfers and acquisitions of AAUs. On reporting, he noted the inclusion of information on transfers and acquisitions of AAUs and any retired amounts in the annual report to the Secretariat. Regarding the end of commitment period, he said Parties could have an opportunity to cure any emissions overage through the acquisition of AAUs. He stated that there should be consistent treatment of Parties whose emissions exceed their assigned amounts whether or not they had engaged in emissions trading.

INDIA asked how issues relating to accountability, including buyer and seller liability, could be discussed without first determining rights susceptible to abuse and from which questions of liability would emerge. He urged commencement of discussion on the nature and scope of Article 17 to help determine rights. He noted that the emissions limitation and reduction commitments assigned in the Protocol do not establish entitlement to trade. Regarding "hot air," he questioned how it will be reported and verified and whether any right for selling could be attached to it.

DISCUSSION OF PROPOSALS: In the ensuing discussion, participants considered the model proposed by Switzerland, issues surrounding liability, reporting periods and methodology, and whether the trading system would be on a year-by-year or commitment period basis. One participant asked how, in the Swiss model, both post-verification and forward trading could be allowed, and what would happen if, when forward trade takes place, no permits remain for the selling Party. Switzerland replied that in addition to AAUs, CERs and ERUs would be available in the market, and that hedging against such an event is the responsibility of those offering forward trades. Another said the Swiss proposal muted the liability issue, because AAUs sold on the spot market would already be certified. One speculated that this system would be similar to a buyer liability system with only forward trading, but with more security for the buyer because the validity of permits could be calculated before the end of the budget period.

One participant noted that trading of surplus allowances would build confidence in the trading system. He said a system of trading surpluses would fit well with annual reporting, but noted that data compilation can take a bit of time. Another participant remarked that estimates of what is available for the market must be revised at the end of the budget period. Participants also focused on, *inter alia*: avoiding incentives for Annex B countries to sell a portion of their assigned amount that they will need for compliance; whether there should be a body similar to the Executive Board of the CDM for emissions trading; whether the focus on Article 17 rules distracts from overall Protocol compliance issues; and whether Article 17 actually covers legal entities.

WORKING GROUP ON EMISSIONS TRADING: Brian Fisher (Australia) and Ingrid Apene (Latvia) chaired the working group on emissions trading. Participants first addressed issues related to reporting and emissions registers, and the links to compliance. Most speakers agreed on the importance of developing internationally agreed guidelines and rules. It was stressed by some that granting private entities access to registries requires Parties to supervise such access accordingly. Others said that if Parties focus on strong domestic compliance and oversight, then ensuring that each legal entity is acting in compliance might not be necessary. Regarding the linkages between the national registries, some participants stressed that they should be compatible, but not necessarily identical. Some speakers focused on whether: domestic trading is within the purview of the international registry; whether the registry is open to public scrutiny beyond the national level; and what happens if there is conflict with the rules drawn up by the COP and the domestic registry rules. One participant

thought the proposals for registries called for too much information, and suggested limiting them to adding or subtracting from the assigned amount and covering the source of removals.

The discussion also focused on proposals from Switzerland and EDF, who called for accountability during the budget period. EDF proposed, as an incentive for compliance during the budget period, that comparing assigned amounts against net emissions would provide an indication of "overselling." If a Party's net emissions exceed a certain amount of its total assigned amount (for example, 110%), then all its AAUs transferred to others in the past year would be discounted. If it has emitted 120% of its assigned amount, it cannot make any more transfers at all. The proposal would signal if a Party's total emissions in a period were greater than the total amount available to it.

Participants asked, *inter alia*: could a private entity with a trading surplus continue trading, even while its country is behind in meeting its targets; would the proposed system require Parties to distribute their total commitment over a five-year period; and would Parties have to buy more emissions credits to make up for a shortfall, rather than discount their transfers. Other aspects discussed were whether full value would be restored to discounted transfers if a Party comes into compliance and whether a Party's approval should be required for transfers by its designated entities.

Some participants supported the Swiss proposal's yearly budget approach, noting that it provides greater environmental guarantees and does not postpone the deflation or inflation of units. A number of participants underscored the importance of constructing a system that indicates Parties' progress during the commitment period. One participant expressed concern that the Swiss proposal in effect required Parties to make a surplus before they could trade. Another noted that most questions of "overselling" and liability are related to how compliance with commitments will be addressed. Another suggested that each country could decide how to allocate its five-year budget on an annual basis and could deposit an instrument setting out its plan.

Regarding "hot air," one Party questioned how one would verify that these units were obtained by additional measures. Another participant said the question was not whether the action is additional to any that would have occurred otherwise, but whether it reduces emissions through a domestic effort. She sought a requirement for Parties to prove that their reductions have been through their own efforts. Some participants underscored the difficulty of ascribing a change in emissions levels to any particular policy. One noted difficulties in distinguishing what was done simply to lower emissions and what was done for other reasons, such as lowering automobile use through taxes to encourage rail travel, thereby also reducing emissions. Another participant said that supplementarity was difficult because it requires a judgement of a Party's intent. One participant stated that if a country is not in compliance, that would be its own problem. If an entity from that country did not comply, that would be the problem of that entity via its national authorities.

CAPACITY BUILDING ON MECHANISMS

Christine Zumkeller, FCCC Secretariat, presented the draft plan for facilitating capacity building, developed in response to decision 7/CP.4. The plan, designed to facilitate capacity-building at the national level, aims to strengthen developing countries' capacity to engage in CDM project activities, facilitate EIT Parties participation and to increase the flexibility of the mechanisms through improved transparency. She emphasized building on existing expertise, involving industry organizations and raising awareness of mechanisms as key issues. Kai Schmidt, FCCC Secretariat, highlighted a project proposal for capacity building for the Protocol mechanisms. The proposed project calls for, *inter alia,* awareness raising, regional meetings to involve stakeholders, climate change forums and information kits. In closing, Zumkeller emphasized that the capacity building programme is designed to feed into the international process, respond to the needs of all stakeholders and train people interested in the CDM.

Thomas Johansson (UNDP) highlighted UNDP's priority work on climate change and its emphasis on capacity building for project identification and development. Guillermo Blasco (UNIDO) described UNIDO's technology transfer and energy efficiency work and contributions to manuals on procedures for accreditation and verification and guidelines for technology transfer. Regarding the CDM, he said UNIDO aims to reduce transaction costs and facilitate private sector investment. Ravi Sharma (UNEP) presented an overview of UNEP's efforts to build analytical capacity, enhance information and network capacities, and develop guidelines for transfer of climate relevant technology. Frank Joshua (UNCTAD) noted UNCTAD's capacity to address economic, trade and foreign investment issues, and said UNCTAD will carry out analytical work on the options for using CERs.

Norbert Nziramasanga (Southern Center) discussed capacity building for determining project eligibility and promoting transfer of technology in the context of the CDM. He said project implementers must be able to identify requirements for gaining access to CDM, select and develop good projects, undertake all activities of a CDM project, and identify and organize a project team. He said governments must have the capacity to select projects that contribute to sustainable development, prepare projects for the CDM market, assist in securing financing for the non-CDM portion of projects, negotiate CERs, and have a definition of government role in monitoring and verification to implement this role.

QUESTION AND ANSWER SESSION: On governance of efforts, one participant asked who decided what each organization is supposed to do, and another asked how the COP governs the programme. Participants also stressed that only the COP/MOP can develop rules and thus capacity-building workshops should strive to identify proposals and explain the basis for and the consequences of their adoption, enabling countries to make informed decisions in the rule-making stage. Several participants noted that work on manuals was premature, stating that these should wait until the CDM methodology had been agreed upon. Blasco explained that the manuals were meant to comprise analytical work and serve as input for decision making. One participant emphasized the need to strengthen national focal points and said that limited financial resources prohibit active discussion. One participant stressed that capacity building should not be an opportunity for individuals to sell their own views or projects, but rather help Parties to become familiar with issues being discussed, understand the consequences of the options in each case and be able to make decisions that conform to national interests.

In response to inquiries about the budget and funding for the project, Zumkeller said the estimated budget stands at approximately US$6 million and noted that several donors will be approached. Participants also commented that: FCCC Secretariat and UN agencies' activities should complement the work of other agencies such as the World Bank; capacity building should be demand driven and take a bottom-up approach; UNDP should assist climate change focal points at the national level; duplication of efforts should be avoided; and national and international NGOs, industry and the business community should be involved in the capacity building process. Joshua stated that UNCTAD will not have a major role in the CDM but will complement the roles of other institutions in areas where they have comparative advantage.

CONCLUDING DISCUSSION OF THE WORKSHOP

Participants offered their views on the deliberations in the workshop and shared ideas on future work following the working group sessions and after the discussions on capacity building. Many participants praised the technical workshop as a step forward in the development of the Kyoto Protocol, stating that it had clarified a number of issues, provided a forum for exchange of views and signaled areas where more work is needed. One participant said the discussions had illustrated the complexity of the mechanisms and how difficult they will be to implement. Another participant stated that even though the workshop focused on technical issues, politically controversial issues such as supplementarity are inevitable and will need to be discussed in order to come up with meaningful results. Noting that the workshop was informal, she added that it was important to take into consideration work done outside the formal negotiation process.

One participant said that whereas the workshop had been useful, it had been confined to discussions and methods and had neglected the principles that determine the legitimacy of the methodologies. The principles he highlighted included: the legal character of what was being assigned; the proprietorial implications of the AAUs; and the legal implications of the transboundary transfers of rights. He proposed that these issues be addressed in a future workshop.

Regarding future work, suggestions for further consideration included, *inter alia*: a concrete draft on guidelines for JI; definition and nature of the verification process; baselines and monitoring; allocation of funds for the CDM; benchmarks; guidelines for registries; guidelines for emissions monitoring and calculations of emission factors; guiding principles for the mechanisms; additionality for project-based mechanisms; and examination of the linkages between the three Protocol mechanisms. A proposal to organize a technical workshop to discuss Protocol issues that relate to WTO rules was highlighted.

A number of delegates stressed the need for common terminology to facilitate further discussions. One participant stated that there was a need to solicit views from a broad range of groups to facilitate the development of technical options by the Secretariat. He said that the review of the AIJ pilot phase could provide an opportunity to do more work on concrete examples. A workshop on the CDM by AOSIS countries to be held in the Marshall Islands in July this year was announced.

In his closing statement, Chair Chow recalled that the purpose of the workshop was to promote mutual understanding on the issues. He noted the cordial exchange of ideas and said that he was confident that it would facilitate progress in the negotiations. He stated that there would be no formal conclusions of the workshop but a report will be presented to the Subsidiary Bodies meeting in June. Regarding further workshops, he said that the Subsidiary Bodies will consider the ideas and guide the Secretariat in defining further work. He mentioned that two workshops – on Article 4.8 and 4.9 (adverse effects) and on technology transfer – were being considered for the second half of the year. He thanked the participants and organizers of the workshop and closed the workshop at 1:00 p.m on Thursday, 15 April.

THINGS TO LOOK FOR

SECOND INTERNATIONAL CONFERENCE ON EMERGING MARKETS FOR EMISSIONS TRADING: This conference will be held from 26-27 April 1999 in London and will be supported by UNCTAD, the UK and the Institute of Petroleum in London. For more information contact: Rachel Summers, Global Village Conferences, 70, Wheelhouse, Burrells Wharf, Westferry Road, London, E14 3TA; tel: +44-171-538-1700; fax: +44-171-538-4244; e-mail: info@emissions.co.uk

IEA INTERNATIONAL WORKSHOP ON TECHNOLOGIES TO REDUCE GREENHOUSE GAS EMISSIONS — ENGINEERING-ECONOMIC ANALYSES OF CONSERVED ENERGY AND CARBON: This workshop, co-sponsored by the International Energy Agency, the US Department of Energy and the US Environmental Protection Agency will be held from 4-6 May 1999 in Washington, DC. For more information contact: John Newman, International Energy Agency; tel: +33-1-40 57 67 15, fax: +33 1 40 57 67 49, e-mail: john.newman@iea.org or Jeffery Dowd, US Department of Energy; tel: +1-202-586-7258; fax: +1-202-586-4447; e-mail: jeff.dowd@hq.doe.gov.

GLOBAL ENVIRONMENT FACILITY (GEF) COUNCIL MEETING: The next Council Meeting will be held from 5-7 May 1999 in Washington, DC, to be preceeded by the NGO Consultation on 4 May. For more information contact: Marie Morgan, GEF Secretariat; tel: +1-202-473-1128; fax: +1-202-522-3240; Internet: http://www.gef-web.com.

10TH GLOBAL WARMING INTERNATIONAL CONFERENCE AND EXPO: The 10th Global Warming International Conference and Expo will be held in Mt. Fuji, Japan, from 5-8 May 1999. The meeting is sponsored by the Global Warming International Center (GWIC), P.O. Box 5275, Woodridge, IL, USA 60517-0275; tel: +1-630-910-1551; fax: +1-630-910-1561; Internet: http://global-warming.net/.

FCCC SUBSIDIARY BODIES: The FCCC Subsidiary Bodies will meet from 31 May – 11 June 1999 in Bonn, Germany. Prior to COP-5, workshops on Article 4.8 and 4.9 (adverse impacts) and technology transfer will be held. COP-5 will be held in Bonn from 25 October – 5 November 1999. 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.de/.

MEETING ON PACIFIC ISLAND NATIONAL IMPLEMENTATION STRATEGIES AND AOSIS MEETING ON THE CDM: The meeting on Pacific Island national implementation strategies for climate change will be held from 12-13 July 1999 in Majuro, Marshall Islands. This will be followed, from 14-16 July, by the Alliance of Small Island States (AOSIS) meeting on the CDM. For more information contact: e-mail: rmiun@aol.com.

SECOND ANNUAL EARTH TECHNOLOGIES FORUM: The Second Annual Earth Technologies Forum will be held in Washington, DC, from 27-29 September 1999. Hosted by the International Climate Change Partnership and the Alliance for Responsible Atmospheric Policy, in cooperation with the US EPA and several other organizations, this event focuses on global climate change and ozone protection technologies and policies. For more information contact: Erika Fischer; tel: +1-703-807-4052; fax: +1-703-243-2874; Internet: http://www.earthforum.com/.

FOURTH INTERNATIONAL CONGRESS ON ENERGY, ENVIRONMENT & TECHNOLOGICAL INNOVATION: The 4th International Congress on Energy, Environment & Technological Innovation will be held from 20-24 October 1999 in Rome, Italy. Organized by "La Sapienza" and "Roma Tre" Universities and the Universidad Central de Venezuela, the Congress offers the opportunity for high-level scientific debate and communication between participants on the problems related to regional and urban management. For more information contact: EETI99, Facolta di Ingegneria, Via Eudossiana 18, 00184 Rome, Italy; fax: +39-6-4883235; Internet: http://www.ing.ucv.ve/ceait/eeti.htm.