



# CDM Conference & CCS Roundtable Bulletin

## A Summary Report of the First International Conference on the CDM in Saudi Arabia

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### SUMMARY OF THE FIRST INTERNATIONAL CONFERENCE ON THE CLEAN DEVELOPMENT MECHANISM IN SAUDI ARABIA AND THE EU-OPEC ROUNDTABLE ON CARBON DIOXIDE CAPTURE AND STORAGE: 19-21 SEPTEMBER 2006

The First International Conference on the Clean Development Mechanism (CDM) in Saudi Arabia took place at the Intercontinental Hotel in Riyadh, Saudi Arabia, from 19-20 September 2006. The theme of the Conference was “The Kyoto Protocol and Saudi Arabia: (From) Observation (to) Acceptance (and) Fast Implementation.” Organized by the Ministry of Petroleum and Mineral Resources of Saudi Arabia, the objective of the Conference was to provide participants with a conceptual understanding of the financial and economic development benefits that the CDM can provide.

Immediately following the Conference, on Thursday, 21 September 2006, the Ministry of Petroleum and Mineral Resources of Saudi Arabia hosted a Roundtable on Carbon Dioxide Capture and Storage (CCS), also at the Riyadh Intercontinental Hotel. This Roundtable was jointly organized by the European Union (EU) and the Organization of the Petroleum Exporting Countries (OPEC) and formed part of the 2006 Work Programme of the EU-OPEC Energy Dialogue. The Roundtable aimed to: update participants on the latest developments in technology, costs, policies and regulations related to CCS; identify factors necessary to ensure rapid expansion of CCS; and discuss the potential role for the EU-OPEC Dialogue in promoting CCS.

Over the course of the three days, more than 300 participants attended, representing governments, international organizations, industrial, financial and legal entities, and research institutions.

This report summarizes both the Conference on CDM and the Roundtable on CCS.

#### A BRIEF HISTORY OF THE CLIMATE CHANGE PROCESS AND THE CDM, THE EU-OPEC ENERGY DIALOGUE AND CCS

**THE UNFCCC:** Climate change poses a serious threat to sustainable development, with adverse impacts expected on human health, food security, economic activity, the environment, water and other natural resources, as well as physical infrastructure. The international political response to

climate change took shape in 1992 with the adoption of the UN Framework Convention on Climate Change (UNFCCC). The UNFCCC sets out a framework for action aimed at stabilizing atmospheric concentrations of greenhouse gases (GHG) in order to avoid “dangerous anthropogenic interference” with the climate system. Controlled gases include methane, nitrous oxide and, in particular, carbon dioxide. The UNFCCC entered into force in March 1994, and now has 189 parties.

**Kyoto Protocol:** In December 1997, delegates met in Kyoto, Japan, and adopted the Kyoto Protocol to the UNFCCC that commits developed countries and countries with economies in transition (Annex I parties) to achieve quantified emissions reduction targets. These countries agreed to reduce their overall emissions of six GHGs by an average of 5.2% below 1990 levels between 2008 and 2012 (the first commitment period), with specific targets varying from country to country. The Kyoto Protocol also establishes three flexible mechanisms to assist the parties in meeting their national targets cost-effectively: an emissions trading system; joint implementation (JI); and the Clean Development Mechanism (CDM), which allows Annex I Parties to invest in project activities in non-Annex I countries and to use the certified emission reductions (CERs) accrued from the year 2000 onwards to comply with their commitments during the first commitment period. The Kyoto Protocol entered into force in February 2005, and now has 164 parties.

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**Marrakesh Accords:** In late 2001, at the seventh Conference of the Parties (COP 7) in Marrakesh, Morocco, delegates reached agreement on the Marrakesh Accords – a package of draft decisions, including on many details of the flexible mechanisms, reporting and methodologies, land use, land-use change and forestry (LULUCF), and compliance with the Kyoto Protocol, to be adopted by parties at the first Conference of the Parties acting as the Meeting of the Parties to the Kyoto Protocol (COP/MOP).

Delegates built on the Marrakesh Accords at COP 8 and COP 9, elaborating on rules and procedures for the CDM Executive Board (CDM EB), and on modalities and procedures for afforestation and reforestation (A&R) project activities under the CDM. Parties also discussed how to integrate the findings contained in the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) into the work of the UNFCCC, and agreed on two new agenda items concerned with adaptation and mitigation.

**COP 11 and COP/MOP 1:** At COP 11 and COP/MOP 1, held in Montreal, Canada, in late 2005, parties took decisions on the outstanding operational details of the Kyoto Protocol, including formally adopting the Marrakesh Accords, and on a process to discuss commitments for the post-2012 period. Various methodological, administrative, financial and institutional matters were also considered. COP 11 addressed issues such as capacity building, technology development and transfer, the adverse effects of climate change on developing and least developed countries, and several financial and budget-related issues. After lengthy negotiations, the COP also agreed on a process to consider future action under the UNFCCC.

On the CDM, the COP/MOP took a decision that further detailed the roles of the COP/MOP and the CDM EB in administering the CDM and that defined differentiated participation requirements for Annex I and non-Annex I parties (decision 4/CMP.1). This decision also included provisions on accrediting Designated Operational Entities (DOEs), and monitoring, validation, verification and certification of emissions reductions generated by CDM projects, as well as on issuance of CERs. In another decision (decision 7/CMP.1), the COP/MOP recognized the need to ensure the CDM's continuity beyond 2012, extended the deadline for retroactive crediting for "prompt start" CDM projects, and provided a number of directions to the CDM EB regarding administration of the CDM.

**EU-OPEC ENERGY DIALOGUE:** The EU-OPEC Energy Dialogue was established by the Dutch EU Presidency, the European Commission (EC) and the President of the OPEC Conference in late 2004. This Dialogue is seen by the EU as part of a broader approach to strengthen energy dialogues with the key oil and gas suppliers, while OPEC views it as a further step in encouraging dialogue and cooperation among oil producers and consumers.

The Energy Dialogue first met in Brussels, Belgium, in June 2005, when it identified several themes for enhancing cooperation in the mutual interest of the EU and OPEC: oil market developments; energy policies; energy technologies; and energy-related multilateral issues. A roundtable on recent oil market developments and future prospects was held in November 2005, in Vienna, Austria, followed by the second meeting of

the Energy Dialogue in December 2005, also in Vienna. At its second meeting, the Energy Dialogue reviewed the report of the November 2005 roundtable, discussed its 2006 Work Programme, and welcomed the inauguration of the International Energy Forum's Secretariat in Riyadh, as well as the launching of the Joint Oil Data Initiative, to which both OPEC and the EU contributed.

At the third meeting of the Energy Dialogue, held in Brussels, in June 2006, participants agreed also to: further develop a proposal to establish an EU-OPEC energy technology center as a focal point for launching joint cooperation and research; hold a roundtable on CCS in Riyadh; work on a joint study on investment needs in the oil refining sector; and hold a joint event on the impact of financial speculative markets on oil prices.

**CARBON DIOXIDE CAPTURE AND STORAGE:** CCS involves separation of carbon dioxide from industrial and energy-related sources, its transportation to a storage location and its long-term isolation from the atmosphere. Although CCS can be implemented mainly by applying known technology developed for other purposes, its potential role in tackling climate change was not recognized as early as some other mitigation options. The topic also received little attention in the IPCC's Second and Third Assessment Reports.

In response to an invitation from COP 7, and in recognition of the need for a broader approach to assessing mitigation options, the IPCC decided, at its twentieth meeting, held in September 2003, in Paris, France, to commence work toward a Special Report on CCS (IPCC CCS Special Report). This Report, along with a Summary for Policymakers, was released after the latter was approved by the IPCC's Working Group III at its eighth session, held in September 2005, in Montreal.

In considering the IPCC's CCS Special Report at the twenty-third meeting of the UNFCCC's Subsidiary Bodies (SB 23), held in conjunction with COP 11, the Subsidiary Body for Scientific and Technological Advice (SBSTA) noted that CCS systems are in various stages of development, requested the UNFCCC Secretariat to organize an in-session workshop on CCS at SB 24, and encouraged parties and the private sector to support development, deployment and diffusion of such technologies.

The in-session workshop on CCS was held at SB 24 in May 2006, in Bonn, Germany. This workshop aimed to improve understanding of CCS through an overview of the IPCC CCS Special Report. Participants discussed various aspects of CCS, including: technology options; pilot projects in Canada, Algeria and the Netherlands; financial and monitoring challenges; nascent ocean storage technology; the Carbon Sequestration Leadership Forum; policy and legal issues; applying CCS emission estimation methodologies in national GHG inventories; capacity building; an EU policy framework for CCS; and risk assessment.

The SBSTA also held an in-session workshop on CCS as CDM project activities at SB 24. At this workshop, which sought to open a dialogue on the topic of CCS in the CDM, participants focused on project boundary, leakage and permanence issues, and matters raised in the decision of COP/MOP 1 on further guidance relating to the CDM.

## REPORT OF THE CONFERENCE: THE KYOTO PROTOCOL AND SAUDI ARABIA: (FROM OBSERVATION (TO) ACCEPTANCE (AND) FAST IMPLEMENTATION

This First International Conference on the CDM in Saudi Arabia took place from 19-20 September 2006. Throughout the two days, participants heard keynote speeches, presentations and panel discussions on CDM background and overview, perspectives and principles related to the CDM, and legal, financial and methodological aspects of the CDM. Sessions I-III were held on Tuesday, 19 September, and sessions IV-VII took place on Wednesday, 20 September.

### OPENING OF THE CONFERENCE

Conference Chair Mohammed Al-Sabban, Senior Advisor to the Minister of Petroleum and Natural Resources of Saudi Arabia, highlighted the significance of the CDM, and noted the continued importance of oil for energy production globally. He



Conference Chair Mohammed Al-Sabban, Senior Advisor to the Minister of Petroleum and Natural Resources of Saudi Arabia

said new mechanisms such as CCS are critical for reducing emissions, and that the goal of the Conference was to increase awareness of such new mechanisms and to establish principles for implementing the CDM.

Mohammed Barkindo, Acting Secretary General of OPEC, outlined the origins of the CDM, its transformation into an investment mechanism, and its importance for developing countries in transferring

technology and facilitating sustainable development. He said OPEC views technological options that allow the continued use of oil as critical to the climate change regime and that CCS is a win-win opportunity for storing carbon dioxide and increasing oil reserves in mature fields. He also suggested that the EU's primary focus on emissions trading leads to an exclusion of CDM activities and that there is a need to direct finances toward the CDM.

Highlighting CDM achievements, Yvo de Boer, UNFCCC Executive Secretary, noted that COP/MOP 1 succeeded in simplifying some complexities associated with the CDM. He noted the huge growth in future energy demands, the significance of oil and gas as energy sources, the need for deep emissions cuts by industrialized countries, and the importance of the Kyoto Protocol as an investment instrument. He indicated that key priorities in responding to climate change include strengthening developing country capacity to participate in the CDM and expanding its geographical coverage, as well as achieving real action on adaptation. He also emphasized that Western Asia is a key player in the climate change regime.

An official ceremony was held on Tuesday evening. At the ceremony, Conference Chair Al-Sabban noted that Saudi Arabia has participated in all of the UNFCCC COPs and that that while all understand the importance of the Kyoto Protocol, oil

should not be made a victim to the policies of some countries. He said that the adoption of the CDM under the Kyoto Protocol is an example of realizing business between industrialized and non-industrialized countries and suggested that the CDM is a key instrument for addressing sustainable development. In emphasizing the need for continued development and greater oil production to meet demand, he suggested that the CDM promises to provide a great opportunity.

Ali Al Naimi, Minister of Petroleum and Mineral Resources of Saudi Arabia, noted that this Conference aims to highlight that CDM in developing and Gulf Cooperation Council (GCC) countries is a means to attract more investment, and that it is important to use the right methods to reduce emissions. He said that as Saudi Arabia relies on crude oil exports, it looks positively on the CDM as a tool to help achieve economic diversification. He emphasized that accomplishing high economic growth does not mean sacrificing the environment and that it is possible to achieve a balance by concentrating on technology that serves both aims.

Prince Salman Bin Abdulaziz Al Saud, Governor of Riyadh, noted the need for enriching oil production and reducing emissions. He expressed hope that industrialized countries will fulfill their emissions reduction obligations. He said that Saudi Arabia is prepared to show the world that it is ready for economic diversification and protection of the climate.

### SESSION I - CDM BACKGROUND AND OVERVIEW

Session Chair Mervat Tallawi, Executive Secretary, UN Economic and Social Commission for Western Asia (ESCWA), highlighted various activities of ESCWA and noted that some member countries have begun implementing CDM projects.

Kai-Uwe Barani Schmidt, UNFCCC Secretariat, provided perspectives on the CDM under the Kyoto Protocol. He outlined the exponential acceleration of CDM activities, while underscoring that much remains to be learned. Emphasizing the bottom-up nature of the CDM process, he said an ongoing challenge is to ensure wide understanding of the CDM and its objectives. He underscored that the CDM is one part of a set of incentives and financial options for bringing about mitigation, adaptation and sustainable development, and that it will be important to optimize CDM processes so as to ensure real emissions reductions and the delivery of assistance to developing countries.

Schmidt presented on the concept and methodology behind the CDM. He outlined its origins and objectives, and suggested similarities between the CDM project cycle and the normal business cycle for a "product" or "deliverable." He explained the roles of different actors within the CDM project cycle, the significance of "additionality," the project approval process, and



Chair, Mervat Tallawi, Executive Secretary, UN Economic and Social Commission for Western Asia (ESCWA)

possibilities for modifying an approved methodology. Schmidt concluded by underscoring that the CDM is a real life, global learning experience for the future that includes public input at all stages.

On the low level of CDM participation by GCC Region countries, John Kilani, Qatar Petroleum, suggested that reasons include: the CDM's complexity; low awareness of the mechanism within the region; its potential impact on institutional, policy and legal frameworks; the relatively low rate of return of CDM projects; and project lead time. He said a GCC framework must facilitate effective participation, build on well-established business models and previous experience, enhance the role of CDM actors, and foster regional collaboration.

Describing the CDM as a public-private and North-South partnership, Andrei Marcu, President and CEO, International Emissions Trading Association, suggested that it presents one way of combating climate change. He said important progress has been made in developing the CDM, but cautioned that if



Yvo de Boer, UNFCCC Executive Secretary

outstanding issues are not addressed, broad participation would be discouraged and progress be eroded. Marcu highlighted that these issues include: the high workload of the CDM EB and its Methodology Panel (Meth Panel); insufficient communication; the technical capacity of the Meth Panel; the long methodology approval time; and the regional and sectoral distribution of CDM projects.

#### DISCUSSION:

Responding to participant questions, John Kilani emphasized GCC collaboration in developing CDM-related criteria and Yvo de Boer noted that CDM financing is generally a small part of wider project finance. Responding to a question on obstacles to CCS-based CDM projects, Andrei Marcu suggested the barriers were more political than technical. Participants also discussed measures for capacity building and technology transfer, environmental indices for CDM projects, the relevance of large-scale CDM projects to GCC countries and whether anything can be learned from projects that were not approved by the CDM EB.

## SESSION II - CDM METHODOLOGY

Richard Bradley, International Energy Agency (IEA), chaired this session.

Chadia El Meouchi, Badri & Salim El Meouchi Law Firm, Lebanon, outlined the role of emission reduction purchase agreements (ERPAs) in the CDM and the importance of lawyers in CDM project transactions at all levels, including advising on risk allocation. She discussed various risks, including: traditional project risks, such as project financing and underperformance; Kyoto Protocol-related risks, such as the developing international legal framework; and inadequate enforcement of agreements. She

also noted solutions for mitigating risks, including: defining the number of CERs and establishing their legal title so as to address transfer risks; specifying payment modalities for averting price risks; and alternative dispute resolution mechanisms.

Rajesh Sethi, CDM EB (India), focused on the CDM project and methodology tools, CDM opportunities in the petroleum sector and the experience of the Indian Designated National Authority (DNA). He explained a number of CDM design issues such as consolidated tools for demonstration of additionalities, procedures for demonstrating baselines and guidelines for completing CDM project design documents (PDDs). He also discussed options for CDM projects in the oil and gas sector, and highlighted some approved methodologies, including those related to recovery and utilization of gas from oil well sites. He also noted that most of the approved projects in India are renewable energy projects and that programmatic CDM and double-counting of emissions remain key concerns for the CDM.

Edward Manukian, Xenel-Balderrie Project Finance & Advisory, noted the importance of Kyoto-enhanced project finance as a catalyst for faster implementation of the CDM, and focused on integrating Kyoto finance and project finance possibilities into emerging markets, including the early exploitation of Kyoto finance. Noting that a number of financing institutions have a carbon desk, he elaborated on a module for Kyoto-generated monetization that reduces the requirement of initial equity consideration, among other factors.

Salim Badri El Meouchi, Badri & Salim El Meouchi Law Firm, noted that Kyoto finance can be associated with Islamic transactions and that for Islamic institutions to accept Kyoto financing, CDM-compliant project finance must comply with Sharia law. He said CER buyers, in designing projects, should seek guidance from the relevant Sharia Board. He discussed two types of contracts that can be useful for Kyoto Protocol-related finance – one where a CER purchaser is a lender and another where the purchaser is a borrower of finance. He emphasized that these contracts cannot be used for the sole purposes of trading, but also need to include public benefits. Chair Bradley concluded that, while there is a lot of focus on international rules, tools and methodologies relating to the CDM, these need to be customized to national and cultural circumstances in order to ensure sound implementation.

**DISCUSSION:** Participants discussed ways to operationalize sustainable development criteria for CDM projects, classification of certain activities as CDM projects, including exporting biodiesel fuel to developed countries.



L-R: Rajesh Sethi, CDM EB (India); Chadia El Meouchi, Badri & Salim El Meouchi Law Firm, Lebanon; Richard Bradley, International Energy Agency (IEA); Edward Manukian, Xenel-Balderrie Project Finance & Advisory; and Salim Badri El Meouchi, Badri & Salim El Meouchi Law Firm



L-R: Adrian Stott, Mitsubishi UFJ Securities; Jose Domingos Miguez, CDM EB Chair; Chair Abbas Naqi, Deputy Minister of Energy, Kuwait; Harry Audus, IEA; and Adil Bushnak, Bushnak Consulting, Saudi Arabia

### SESSION III - CDM PROJECTS

Session Chair Abbas Naqi, Deputy Minister of Energy, Kuwait, said the topics of this Conference are relatively new and vital to human communities, and noted that the CDM is connected to the environment, investment, climate and energy, all of which may affect sustainable development in many countries.

In outlining the major outputs of the CDM EB, Jose Domingos Miguez, CDM EB Chair (Brazil), said that 299 projects activities have already been registered and 20 cases reviewed, and 57 methodologies have been approved while another 66 are being considered. He discussed the CDM project cycle for the coming year and estimated that there will be 1.2 billion CERs by 2012 from projects currently in the CDM pipeline. He highlighted future challenges for the CDM EB, including: managing an increasing case load; operational supervision; clarifying terms and concepts; and improving procedures.

Harry Audus, IEA, presented on progress toward agreement on the principles of a CCS-CDM methodology. After introducing what is meant by CCS, Audus outlined the activities of a Working Group formed to develop common principles for a CCS-CDM methodology, comprising representatives from governments, multinational corporations, consulting firms, DOEs, finance companies and international organizations. He said the CDM could be an important mechanism for contributing to the establishment of CCS as a major option for emissions reduction and that, while there are several issues that must be addressed, these do not appear to be potential “show stoppers.”

Adrian Stott, Mitsubishi UFJ Securities, discussed CDM projects being worked on by the Clean Energy Finance Committee of his organization that may be relevant to Saudi Arabia and other GCC countries. He discussed several projects, including: the Zafaran wind power project in Egypt; the Organics integrated solid waste management project in Indonesia; and the LG Chem fuel switch project in Korea. For each of these projects, he outlined: project participants, technologies and phases of implementation; applicable CDM methodologies; and estimated emissions reductions.

Adil Bushnak, Bushnak Consulting, Saudi Arabia, presented on possibilities for desalination projects in Saudi Arabia using renewable energy. Providing examples of projects in Saudi Arabia and elsewhere, he discussed the costs of electric power generation and the estimated cost of seawater desalination by solar and biomass energy. He concluded by recommending that:

the Government of Saudi Arabia should export water and power produced by sustainable solar energy; it should also pay investors the market value of oil saved and exported by local solar-assisted plants; and the GCC, ESCWA or another entity should specify how to evaluate and monitor technology transfer and capacity building.

**DISCUSSION:** Participants discussed a range of issues, including: distinctions between potential liabilities in relation to unilateral and non-unilateral CDM projects; the need to consider local environmental impacts of CDM projects; and safety issues associated with underground storage.

### SESSION IV - CDM FRAMEWORKS

This session was chaired by Khalid Ahmad Zainal, Zainal Group, who suggested that while cheap energy allowed industrial development in the US after the Second World War, higher oil prices in the 1950s allowed for similar development in the oil-exporting economies of the Gulf region. He noted that the time is right for a paradigm shift and that the Kyoto Protocol can allow money to be made out of “clean” air.

Georg Børsting, Ministry of Environment, Norway, discussed the institutional framework of the CDM, the roles of various actors and the challenges they face. He outlined the CDM’s regulatory structure, including the function of the COP/MOP as a supreme decision-making body that can also provide specific guidance to the CDM. He noted some challenges, such as the limited resources and high workload of the CDM EB, and communication between the CDM EB and DOEs. Børsting said domestic administrative and political support for the CDM are critical for investment and highlighted the continued need for greater public- and private-sector awareness of the CDM.

Einar Telnes, Det Norske Veritas (DNV), Norway, presented on DNV’s experience as a DOE. He elaborated on the validation process and timelines for project registration. He also noted a number of pitfalls with CDM projects such as lack of logic and consistency in a PDD, and highlighted the need to reference all data contained in PDDs. He underscored challenges to validation and verification processes, including a large disparity between DOE comprehension and conduct, and suggested the need to



L-R: Majed Al-Mansuri, Environment Agency, UAE; Georg Børsting, Ministry of Environment, Norway; Khalid Ahmad Zainal, Zainal Group, United Arab Emirates (UAE); Einar Telnes, Det Norske Veritas (DNV), Norway; and Lasse Ringius, World Bank

create measures for better comprehension of CDM-specific matters.

Majed Al-Mansuri, Environment Agency, UAE, discussed the UAE's DNA, including its structure, composition and function, and the role of its Executive Committee. He presented a flow diagram for submission of CDM projects in the UAE, and suggested that most CDM projects in the region will be related to the oil and gas sector. Al-Mansuri also elaborated on the role of Masdar, a semi-private company of the Abu Dhabi Government that works with the EC on funding CDM projects.

Lasse Ringius, World Bank, discussed the role of the World Bank in the carbon market, its objectives and the carbon funds operated by the Bank. He noted that it plays a role in assisting and building a market for emission reductions, and works to build the capacity of developing countries to benefit from the CDM. He explained that the World Bank does not buy or sell emission reduction units and discussed the distribution of CDM projects by type and region. He also noted that the Bank is involved in activities such as developing carbon infrastructure through holding carbon expos and conducting an annual analysis of the carbon market.

**DISCUSSION:** One participant commented on the neutrality of the World Bank with regard to the CDM given that the US, which is a major funder of the World Bank, is reluctant to endorse the Kyoto Protocol. Other participants expressed concern regarding the need to improve the regional distribution of CDM projects. Another participant questioned the impact of the World Bank on carbon prices and the gains that could be made from the process by oil-producing countries in Africa.

## SESSION V - PUBLIC-PRIVATE PARTNERSHIPS, CDM PROJECT DESIGN, CDM PROJECTS UNDERWAY IN SAUDI ARABIA

Session Chair Adnan Shihab-Eldin, Former Acting Secretary General of OPEC, expressed pleasure that OPEC countries are taking the CDM seriously, particularly Saudi Arabia.

In discussing public and private investments and the CDM project prospective, Seiichiro Nishida, Mitsubishi UFJ Securities, noted the great potential for CDM projects in the Middle East and the short supply of CERs as compared to the high demand. Noting the incorporation of qualification and registration risks



Chair Adnan Shihab-Eldin, Former Acting Secretary General of OPEC

into CER prices, he suggested that it is often better to wait until a project has reached the issuing stage to avoid qualification risks. Identifying "finance-related issues" as a key barrier to success, he highlighted the need to increase the profitability and fund-raising capacity of CDM projects. On raising project profitability, he emphasized the need to monetize the environmental contribution to augment returns and that this

requires supplemental mechanisms to the CDM, such as tax credits.

Rachad Itani, Xenel-Balderrie Project Finance & Advisory, discussed his experience with CDM-enhanced projects in Saudi Arabia and the Middle East. He suggested that CERs are a form of inward foreign investment and that CDM-enhanced finance can provide a significant boost to the internal rate of return. He noted that of the six GHGs covered by the Kyoto Protocol, carbon dioxide, methane and nitrous oxide provide the greatest value and, after outlining present and future projects, he noted that CDM projects are not simply ends in themselves but also means to reduce long-term operating costs.

Abdul Aziz, MGM International, presented on how to identify, design and develop a successful CDM project. He outlined projects in MGM's carbon portfolio, including projects in the areas of renewable energy, oil and gas, waste, energy efficiency and fuel switching, and HFC recovery and decomposition. On ensuring project design and development success, he stressed the need to, *inter alia*: develop a good understanding of appropriate technologies; identify required host country approvals and appropriate project equipment; and ensure that the chosen methodology is applicable to the project. To minimizing risks, he highlighted the need for: multidisciplinary teams; a deep understanding of the local culture; and commitment from the project sponsor.

Faisal Al-Lamki, Petroleum Development Oman (PDO), explained that PDO seeks to be environmentally responsible in its operations and provided the example of its flaring method, which is now recognized as meeting the relevant standard of the International Organization of Standardization. He discussed the market costs of flaring and possibilities for eliminating flaring by 2007 through recovery by an eductor or ejector, using pressure from liquid petroleum gas. On the high level of emissions from power generation, due partly to the difficulties of extracting oil contained in deeper reservoirs, he noted the need for greater energy efficiency.

**DISCUSSION:** Responding to a question on risk mitigation, Rachad Itani suggested: involving international financial institutions and other external actors; working closely with the authorities in a transparent way; conducting direct negotiations with buyers; and ensuring sound legal advice. On a question about the chances of getting approval for an enhanced oil recovery (EOR) project under the CDM, Abdul Aziz said the matter will be considered by the CDM EB and the COP/MOP. On the fungibility of emissions reduction units, Nishida said that trading markets are not currently connected but that once the emissions reduction market becomes more liquid, there should be greater opportunities to trade CERs.



Rachad Itani, Xenel-Balderrie Project Finance & Advisory



L-R: Ahmed Saleh Aseeri, Saudi Aramco; Andrew Mingst, Chevron Corporation; Chair Nadhmi Al-Nasr, Saudi Aramco; Paul Soffe, EcoSecurities; and El-Sayed Mansour Nsar, Egyptian DNA

## SESSION VI - NATURAL GAS AND CDM, LEGAL ASPECTS, WASTE HEAT RECOVERY AND CDM PROJECTS IN EGYPT

Session Chair Nadhmi Al-Nasr, Saudi Aramco, highlighted that the meeting outcomes should be shared with industry chambers of commerce.

Andrew Mingst, Chevron Corporation, presented an overview of Chevron's GHG management programme and underscored the need for finding reliable and affordable energy sources while reducing GHG emissions. He highlighted the policy position of the state Government of California in regulating GHG emissions, noting that a number of companies are making efforts to link potential flexible mechanisms with the CDM. In terms of climate efforts at Chevron, he suggested that GHG management is being integrated in its various projects and outlined two important areas: substitution of carbon intensive fuels by natural gas and reducing the flaring of associated gases. He noted that government efforts to reduce uncertainties in project development will allow project developers to seek CDM opportunities.

Paul Soffe, EcoSecurities, highlighted the role of public and private entities in creating good CDM projects, providing the example of the Chinese public sector in this regard. He said that the public sector needs to encourage media coverage and address negative publicity regarding the CDM and that, given the right business signals, the private sector can engage in providing new technologies and applications. He then elaborated on a number of public-private partnerships, especially where grant facilities were provided through the World Bank and the EC. He underscored that EcoSecurities has been a leader in many CDM-related matters and is interested in working in the Gulf region.

Ahmed Saleh Aseeri, Saudi Aramco, presented on GHG emissions reductions through systematic waste heat recovery processes. He elaborated on several features of Saudi Aramco's energy management programme, including efforts to reduce the energy cost index. He suggested that emissions from combustion can be reduced by improving the efficiency of energy utilization, supply and transmission. He elaborated the design of a waste heat recovery system and highlighted a new method called the "Pinch analysis" that can provide savings in heat recovery. He concluded by noting that in-process interventions for emissions reductions should take priority over activities related to carbon sequestration.

El-Sayed Mansour Nsar, Egyptian DNA, presented on Egyptian experiences with the CDM. In particular, he highlighted issues relating to project approval and implementation, and DNA regulations. Elaborating on the structure of the Egyptian DNA, the Egyptian Council for the CDM and the Egyptian Bureau for

the CDM, he discussed CDM project evaluation steps, a green index that allocates a percentage of income from CERs to an Environmental Protection Fund, accepted CDM projects and Egypt's estimated project portfolio.

**DISCUSSION:** Participants discussed Egypt's experience with CDM projects, the economic viability of energy efficiency projects, heat recovery projects in Saudi Arabia and the need to think about how much risk to take on when monetizing credits.

## SESSION VII: CDM OPPORTUNITIES IN THE SAUDI ARABIAN ENERGY SECTOR, KUZNETS CURVE AND THE ENVIRONMENT, CCS AND CARBON SINKS

The final session was chaired by Saleh Bakhraibah, Advisor to the Governor, Electrical Services Control Organization, Saudi Arabia.

Abdulwahab Al Sadoun, Saudi Arabian General Investment Authority (SAGIA), explained that the Saudi Arabian energy value chain comprises a diverse portfolio of industries with the common denominator of British thermal unit (BTU) intensity and that the petrochemicals industry has shown significant and consistent growth. Al Sadoun noted that, while the industry currently focuses on primary petrochemicals, it is moving towards a more differentiated product portfolio to capture the full potential of the value chain. He concluded that economic reforms and improved macroeconomic management is enhancing the attractiveness of the investment environment in Saudi Arabia's energy sector.

Mansur Masih, King Fahd University of Petroleum and Minerals, Saudi Arabia, explained a the Kuznets economic theory that suggests that economic inequality increases over time, then at a critical point begins to decrease, and is graphically represented by a "Kuznets Curve" in the form of a "U shape." He then discussed a study of whether the Kuznets Curve is applicable to the relationship between economic development and carbon dioxide emissions in Saudi Arabia. Masih said the study found that the relationship is "N-shaped," rather than "U-shaped," and that this suggests that the Saudi Arabian Government does need to address carbon dioxide emissions through measures such as the CDM.

Mahmut Sengul, Schlumberger, presented on dual benefits to industry from CCS. He explained that the geographical distribution of prospective storage and emission sites differ. Noting the need for drivers to make CCS commercially viable in the near future, he suggested that EOR may provide an early incentive. He noted the synergy between high carbon dioxide



L-R: Mahmut Sengul, Schlumberger; Abdulwahab Al Sadoun, Saudi Arabian General Investment Authority (SAGIA); Saleh Bakhraibah, Advisor to the Governor, Electrical Services Control Organization, Saudi Arabia; Mansur Masih, King Fahd University of Petroleum and Minerals, Saudi Arabia; and Yahia Eldool, Ministry of Agriculture, Saudi Arabia

natural gas and EOR in that it is possible to extract waste from natural gas to use in EOR projects, thereby maximizing gas availability while storing carbon dioxide. On CCS in the Middle East, he said that existing oil and gas reservoirs can store larger volumes of carbon dioxide than is the case in other regions but that the regulatory framework needs to be further developed.

Yahia Eldool, Ministry of Agriculture, Saudi Arabia, highlighted the importance of forests, efforts to develop forest resources and their potential role in carbon sequestration. He outlined that forests are an important carbon sink but can become a source if not treated wisely. El Dool highlighted important strategies for sequestration, including reducing demand for wood by using alternate fuels, and noted that A&R CDM projects offer important opportunities.

**DISCUSSION:** Answering a participant's question on the nature of forestry projects that qualify as CDM projects, Yahya El Dool suggested that carbon sequestration depends on the location and species of forest. One participant said that before thinking of A&R, it would be useful to preserve existing forests and develop CDM methodologies to address the same.

## CLOSING PLENARY

Conference Chair Al-Sabban described the Conference as a milestone for Saudi Arabia and the GCC. He said Saudi Arabia's CDM policies are clearly stated and there will be proactive implementation of the CDM. In this regard, he highlighted that the scope and diversity of market potential is enormous and that public-private cooperation is imperative. He suggested that the CDM means the emergence of a new industry, based on the involvement of consultants, experts and accountants able to integrate Kyoto Protocol-related aspects into their general ability to evaluate profit and loss. He also noted that there was agreement that this will create sound environmental practice in public life and industrial production. He emphasized that to undertake this path, good leadership is important and outlined several recommendations, including: developing the legal and structural framework of the Saudi Arabian DNA as soon as possible; appointing a national steering committee that includes private sector members; organizing practical workshops on the CDM in partnership with the UNFCCC; and installing an award system for leading CDM projects. He closed the Conference at 5:44 pm.

### REPORT OF THE ROUNDTABLE: EU-OPEC ROUNDTABLE ON CARBON DIOXIDE CAPTURE AND STORAGE

Held on Thursday, 21 September, the EU-OPEC Roundtable on CCS included keynote speeches, presentations and general discussions on CCS technologies, the prospects of CCS in OPEC and EU member countries, and non-technical factors essential for CCS breakthrough. It also included a high-level panel discussion on the role of the EU-OPEC Energy Dialogue in promoting CCS technologies.

## OPENING SESSION

Roundtable Chair Majid Al-Moneef, Governor of Saudi Arabia to OPEC, expressed hope that the Roundtable would identify the potential role for the EU-OPEC Energy Dialogue, in cooperation



L-R: Hasan Qabazard, OPEC; Chair Majid Al-Moneef, Governor of Saudi Arabia to OPEC; and Derek Taylor, EC

with industry and government, to promote CCS research and development programmes, including through large demonstration projects.

Hasan Qabazard, OPEC, indicated the need to focus on technological options that allow the continued use of oil in a carbon-constrained world. He highlighted that CCS promises a win-win opportunity to store carbon dioxide and increase oil reserves in mature fields.

On the importance of CCS to the EU, Derek Taylor, EC, explained that: the EU needs to diversify its energy mix away from imported fossil fuels; the EC is encouraging zero-emission power generation; and several technology routes need to be pursued to this end. He said CCS is one such important technology route, but that it needs to be safe, controllable, publicly acceptable and involve enhanced international cooperation.

Leo Meyer, Netherlands Environmental Assessment Agency, provided an overview of the IPCC CCS Special Report. He discussed conceptual and operational aspects of CCS, types of storage opportunities, the maturity of technologies, the cost and potential of CCS, and its health safety and environmental risks. He also highlighted that there may be large energy requirements for CCS depending on the technology used, and emphasized that, *inter alia*: CCS has the potential to achieve 55% of global carbon dioxide mitigation; CCS is not a "silver bullet"; and no substantive CCS deployment can occur until the per ton price for carbon is more than US\$25.

## SESSION I - OVERVIEW OF TECHNOLOGY

Session Chair Mohamed Hamel, OPEC, highlighted the importance of technology in CCS and noted that technology is also one of the main themes for enhancing cooperation via the EU-OPEC Energy Dialogue.

Harry Audus, IEA, provided an update of CCS technologies and costs. He focused on several options for power generation and capture as a CCS technology and provided examples from post-combustion capture, oxy-combustion capture and pre-combustion capture processes. He concluded that: CCS costs are large but not excessive and they can be reduced by technology application; the capture process contains the main potential for cost reduction; and further demonstration projects and a roadmap for commercial application are needed.

Wolfgang Heidug, International Association of Oil and Gas Producers, provided an overview of geological storage, including how CCS projects can be managed through appropriate site selection, risk assessment and monitoring procedures. Noting the potential of CCS for emissions reductions, he highlighted the need for legal and regulatory clarity at the domestic and international levels and the potential role of the EU Emissions



Trading Scheme (ETS) and the CDM in providing incentives for investments in CCS.

Tor Fjæran, Statoil, Norway, explained that Statoil intends to considerably reduce carbon dioxide emissions from its operating facilities via several primary measures: the underground injection of carbon dioxide for long-term storage or EOR; electrification of offshore installations from the on-shore hydropower grid; and increased energy efficiency. He outlined Statoil's experience with four large-scale, commercial CCS projects: Sleipner Vest in the North Sea; Snøhvit LNG production in the Barents Sea; In Salah in the Algerian desert; and the Halten carbon dioxide project in Norway.

Iain Wright, BP Alternative Energy, UK, presented on the industrial applications of hydrogen manufacture from fossil fuels with carbon dioxide EOR. Noting that the key challenge for CCS is high costs and low benefits, he elaborated on two existing projects, the Peterhead Hydrogen Project in Scotland and the Carson Hydrogen Power Project in California. He concluded that: CCS with EOR can be a great win-win opportunity for producing green electricity and more oil from fields; green credits will appear in the future; and BP is evaluating more CCS opportunities.

Petra David, TNO Built Environment and Geosciences, the Netherlands, presented on the EU's integrated project on monitoring and verification of carbon dioxide geological storage called "CO2ReMoVe." She highlighted that the EC has invested large research efforts in funding CCS projects, most of which are currently located in industrial sites. She said that the CO2ReMoVe project aims to prove the long-term reliability of geological storage, and to undertake the research and development necessary to establish standards for monitoring future CCS operations. She concluded that this also includes developing integrated and generic prediction and monitoring tools for addressing carbon dioxide migration and leakage.

**DISCUSSION:** One participant queried whether European efforts to diversify its energy mix means that energy-exporting countries should look for alternative markets. Participants also discussed: the need for additional incentives for storing carbon dioxide over and above its function in EOR; regulatory uncertainties in undertaking CCS; the need for better CCS methodologies with the involvement of the oil and gas industry; and the effects of CCS technologies on local conditions.



L-R: Iain Wright, BP Alternative Energy, UK; Tor Fjæran, Statoil, Norway; Wolfgang Heidug, International Association of Oil and Gas Producers; Chair Mohamed Hamel, OPEC; Petra David, TNO Built Environment and Geosciences, the Netherlands; and Harry Audus, IEA



L-R: Derek Taylor, EC, and Chair Mohammed Al-Sabban, Senior Advisor to the Minister of Petroleum and Natural Resources of Saudi Arabia

## SESSION II - PROSPECTS OF CCS IN OPEC MEMBER COUNTRIES AND THE EU

Session Chair Mohammed Al-Sabban, Senior Advisor to the Minister of Petroleum and Natural Resources of Saudi Arabia, said that CCS provides a win-win solution for the environment and economy, particularly for oil-producing countries.

Derek Taylor presented on future research and development paths for securing commercial breakthroughs in CCS. He outlined CCS activities in the EU under its Sixth Framework Programme for Research and Technological Development, including its involvement in the Carbon Sequestration Leadership Forum and the Zero Emission Fossil Fuel Power Plan (ZEFFPP). He also outlined the role of hydrogen in the demonstration of CCS from power plants and said that priority topics for activities under the EU's Seventh Framework Programme, due to start in 2007, include CCS technologies for zero emission power generation and clean coal technologies.

Continuing on the topic of research and development paths for CCS breakthroughs, David Pollard, ALSTOM Power, discussed the ZEFFPP Technology Platform, noting that it aims to develop technology that allows future fossil fuel use while protecting the environment. He then outlined carbon dioxide capture options for combined cycle power plants, including the post- and pre-combustion principles and oxy-fuel decarbonization technologies, and noted that collaboration between EU and GCC partners is possible in all areas of the Technology Platform.

Redouane Haddadji, Sonatrach, Algeria, presented on the In Salah CCS project experience in Algeria. He provided an overview of Sonatrach's climate change activities, noting that it has adopted an ambitious policy on health, safety and the environment. Haddadji explained that, in its efforts to reduce GHG emissions, Sonatrach is collaborating with BP and Statoil to create the first industrial-scale CCS geological storage operation as part of the In Salah project. He said this project demonstrates that GHG mitigation through CCS is viable, safe and cost effective, and sets a precedent for verifying carbon dioxide storage and consideration of CCS eligibility under the CDM.

Abiodun Ibikunle, Ministry of State Petroleum Resources, Nigeria, presented on his country's experience in reducing GHG emissions through projects. Noting that Nigeria became an oil exporter in the 1950s, he outlined government legislation concerned with reduced gas flaring, gas re-injection, and projects related to enhancing development of the natural gas market. He concluded that while Nigeria is not a developed country, it is committed to sustainable development.

Osama Fageeha, Saudi Aramco, outlined Saudi Aramco's carbon management activities, including: forming a multidisciplinary team to address the issue; developing a Carbon Management Technology Roadmap; raising regional and industry awareness; and enhancing collaboration among National Oil Companies. He explained that Saudi Aramco's Carbon Management Roadmap includes five priority areas: carbon dioxide from fixed sources; carbon dioxide EOR; carbon dioxide sequestration; mobile carbon dioxide sources; and carbon dioxide-based applications.

Ahmed Braik, Abu Dhabi National Oil Company (ADNOC), outlined ADNOC's approach to CCS, including: recognizing the value of carbon dioxide as a potential alternative to sweet gas injection; protecting the environment through emissions reductions; ensuring that technology for carbon dioxide recovery from flue gas is proven and applied; and recognizing that reservoir injection of carbon dioxide is an established practice for EOR. He discussed possible carbon dioxide sources within ADNOC's plant and ADNOC's activities in this area, including its work on a pre-feed study.

**DISCUSSION:** Participants raised questions about whether the EU is interested in small-scale CCS projects in the GCC region; EU assistance for skills development within the GCC region; difficulties in ensuring public acceptance; and motivations behind the implementation of CCS strategies.

### SESSION III - NON-TECHNICAL FACTORS ESSENTIAL FOR CCS BREAKTHROUGH

This session was chaired by Derek Taylor.

Tania Constable, Department of Industry, Tourism and Resources, Australia, discussed current policies and regulations on CCS in Australia. She emphasized that CCS offers an opportunity to continue to use fossil fuels in a carbon-constrained world and elaborated on some CCS opportunities worldwide, focusing on the Middle East. She suggested key CCS issues are: skills shortages; financing; legal frameworks for ownership, access and property rights; long-term liability and risk management; harmonization with international conventions; creation of a level playing field; unknown future effects; and public acceptance.

Jane Amilhat, EC, presented on efforts toward an EU Regulatory Framework for CCS. She said that current EC analysis reveals that fossil fuel usage will continue and this makes CCS a key priority in climate change mitigation. She then highlighted a number of EC initiatives such as ongoing research, development of an enabling regulatory framework for considering CCS, frameworks for assessing CCS risks and environmental impacts, and policies that address short- and long-term liabilities associated with CCS. She also discussed the potential of recognizing CCS projects under the CDM and pathways for possible OPEC-EU cooperation.

Adrian Stott, Mitsubishi UFJ Securities, underscored the need for the CDM in ensuring wide implementation of CCS technologies in non-Annex I countries. He described the CDM process and the latest consideration by various Kyoto Protocol entities of the possible eligibility of a CCS methodology under



Jane Amilhat, EC

the CDM. He then described a typical anthropogenic CCS project and the process for consideration of a CDM methodology application.

Ole Flagstad, DNV, discussed the "ACCSEPT Project," explaining that it is an EC-funded project established under the EU's Sixth Framework Programme in early 2006 to address the social, economic, legal and regulatory implications of implementing CCS. He outlined its participating entities and activities to date. He said the aim to contribute to the timely and responsible application of CCS by: assessing EU social acceptance of CCS; assisting with the establishment of CCS guidelines for the EU ETS and other regulatory instruments; and identifying and addressing gaps in existing socioeconomic studies.

**DISCUSSION:** Participants discussed criteria for assessing potential storage locations; defining project boundaries; concrete actions to address public accountability, including the involvement of politicians; and reasons for the current ineligibility of CCS projects under the CDM.

### HIGH-LEVEL PANEL DISCUSSION - THE ROLE OF THE EU-OPEC ENERGY DIALOGUE IN PROMOTING CCS

The Panel was chaired by Hasan Qabazard.

Adnan Shihab-Eldin, Former Acting Secretary General of OPEC, highlighted the need for large-scale demonstration projects in OPEC countries, acceptance of CCS under the CDM, and involvement of the EU in providing value for emissions reduction through CCS EOR.

Jane Amilhat said EU countries should not be the only ones undertaking CCS initiatives and noted that while there cannot be commitments on special incentives for CCS projects, there are possibilities for linkages with the EU ETS.

Stathis Peteves, EC, highlighted the need for transitioning from discussion to concrete action and close global cooperation, and said the establishment of a new EU-OPEC technology center was a step in this direction.

Robert Sherwin, Foreign and Commonwealth Office, UK, said that UK would play a role in international negotiations for inclusion of CCS under the CDM and in the EU ETS and will make initiatives, such as bilateral dialogues with China and India, more widespread.

Osama Fageeha suggested an EU-sponsored OPEC pilot project for carbon dioxide EOR, possibly in a GCC county, and underscored the need for a "top-bottom" approach, such as a ministerial-level agreement, to foster development in the area of CCS.

Said Nchet, International Energy Forum Secretariat, Saudi Arabia, noted that CCS will be at the heart of the dialogue between the two "sides" of the energy market for a long time. He also indicated that, beyond addressing issues such as CCS costs and technologies, the timetables of various stakeholders for moving forward on CCS are different.

Redouane Haddadji noted that emissions reductions by OPEC countries are voluntary, emphasized the importance of the eligibility of CCS under the CDM for promoting CCS in OPEC and other developing countries, and said the EU and OPEC should partner to identify large-scale projects.

## ROUNDTABLE CLOSING

Derek Taylor highlighted that CCS technologies cannot, in isolation, solve the climate change problem and that while the EU has been a leader in addressing climate change, it cannot continue doing so alone.

Panel Chair Hasan Qabazard emphasized that fossil fuel use will continue and that CCS represents a critical technology. He highlighted the need for better financial mechanisms, clear regulatory guidance, creating demonstration projects and holding joint workshops as ways forward for CCS development.

Roundtable Chair Al-Moneef concluded the workshop by suggesting that both the EU and OPEC should disseminate the Roundtable and Conference findings widely and added that the EU-OPEC Energy Dialogue as a way toward developing a common understanding of shared global issues. He closed the meeting at 6:03 pm.

## UPCOMING MEETINGS

### TWENTY-SIXTH MEETING OF THE CDM

**EXECUTIVE BOARD:** The CDM EB will hold its twenty-sixth session from 26-29 September 2006 in Bonn, Germany. The EB will consider issues related to: methodologies for baselines and monitoring plans; A&R projects; small-scale projects; project registration and the issuance of CERs; the CDM registry; and modalities for collaboration with the UNFCCC's Subsidiary Bodies, among other issues. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: [secretariat@unfccc.int](mailto:secretariat@unfccc.int); internet: <http://cdm.unfccc.int/EB/026/>

**RENEWABLE ENERGY 2006:** This conference will take place in Makumahari Messe, Chiba, Japan, from 9-13 October 2006, and is organized by, among others, the Japan Organization for the Promotion of Renewable Energy and the International Solar Energy Society. The meeting will focus on "Advanced Technology Paths to Global Sustainability" by the utilization of renewable energy resources, and will also covers socioeconomic matters and policy issues. For more information, contact: Renewable Energy 2006 Conference Secretariat; tel: +81-3-3508-1277; fax: +81-3-3508-1695; e-mail: [inquiry@re2006.org](mailto:inquiry@re2006.org); internet: <http://www2.convention.co.jp/re2006/index.html>

**CONFERENCE ON HOW TO MAKE MARKETS WORK FOR CLIMATE:** This conference will take place in Amsterdam, the Netherlands, from 16-17 October 2006. It will include discussions on how to create new grant and loan mechanisms at the international level and possibilities to blend public and private financial resources through carbon finance. For more information, contact: Dutch Ministry of Housing, Spatial Planning and the Environment; tel: +31-70-339-3939; fax: +31-70-339-1306; email: [mmw@minvrom.nl](mailto:mmw@minvrom.nl); internet: <http://www.makemarketswork.com/>

**CLIMATE CHANGE AND BUSINESS CONFERENCE 2006:** This conference will be held from 23-25 October 2006 in Kiev, Ukraine. The conference, organized by Point Carbon and Biomass Ltd., will focus on joint implementation projects in Ukraine and elsewhere. The conference is designed for project developers, government representatives, carbon credit purchasers, technology providers, scientists and international organizations. For more information contact: Yulia Samoteykina, Point Carbon;

tel: +38-44-278-3356; e-mail: [kyiv@pointcarbon.com](mailto:kyiv@pointcarbon.com); internet: <http://www.pointcarbon.com/Events/article16480-369.html>

**TWELFTH CONFERENCE OF THE PARTIES TO THE UNFCCC AND SECOND MEETING OF THE PARTIES TO THE KYOTO PROTOCOL:** UNFCCC COP 12 and Kyoto Protocol COP/MOP 2 will take place from 6-17 November 2006 in Nairobi, Kenya. These meetings will coincide with the twenty-fifth meetings of the UNFCCC's Subsidiary Bodies, the second meeting of the *Ad Hoc* Working Group on Further Commitments from Annex I parties under the Kyoto Protocol, and the UNFCCC Dialogue on Long-Term Cooperative Action on Climate Change. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: [secretariat@unfccc.int](mailto:secretariat@unfccc.int); internet: [http://unfccc.int/meetings/cop\\_12/items/3754.php](http://unfccc.int/meetings/cop_12/items/3754.php)

**MEETINGS OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE:** IPCC-26 is scheduled for 4 May 2007, in Bangkok, Thailand, immediately following the 9th session of Working Group III, to be held from 30 April to 3 May 2007. IPCC-27, focusing on the adoption of the AR4, is scheduled for 12-16 November 2007, in Valencia, Spain. For more information, contact: Rudie Bourgeois, IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-730-8025/13; e-mail: [IPCC-Sec@wmo.int](mailto:IPCC-Sec@wmo.int); internet: <http://www.ipcc.ch/>

For more information on upcoming meetings, please visit: <http://www.iisd.ca/upcoming/linkagesmeetings.asp?id=5>

## GLOSSARY

A&R	Afforestation and reforestation
CCS	Carbon dioxide capture and storage
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CERs	Certified Emission Reductions (CDM)
COP	Conference of the Parties to the UNFCCC
COP/MOP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority (CDM)
DOE	Designated Operational Entity (CDM)
EOR	Enhanced Oil Recovery
ERPAs	Emission reduction purchase agreements
EU ETS	European Union Emissions Trading Scheme
GCC	Gulf Cooperation Council
GHG	Greenhouse gases
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
Meth Panel	Methodology Panel (CDM EB)
OPEC	Organization of the Petroleum Exporting Countries
PDD	Project design document (CDM)
SB	Subsidiary Bodies of the UNFCCC
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
UNFCCC	United Nations Framework Convention on Climate Change
ZEFFPP	Zero Emission Fossil Fuel Power Plan