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**ECONOMIC COMMISSION FOR EUROPE**

**COMMITTEE ON SUSTAINABLE ENERGY**

Ad Hoc Group of Experts on Coal Mine Methane

Second Session

Geneva, 31 January – 1 February 2006

**REPORT**

**I. ATTENDANCE**

1. The second session of the Ad Hoc Group of Experts on Coal Mine Methane was held on 31 January and 1 February 2006 and attended by representatives from the following UNECE member countries: Austria, Bulgaria, Czech Republic, France, Germany, Italy, Kazakhstan, Netherlands, Poland, Romania, Russian Federation, Serbia and Montenegro, Turkey, Ukraine, United Kingdom, and United States of America.
2. Representatives of Australia and Japan participated under Article XI of the Commission's Terms of Reference.
3. The European Commission and the International Energy Agency Clean Coal Centre (IEACCC) were also represented

**II. ADOPTION OF THE AGENDA (Agenda Item 1)**

4. The provisional agenda as contained in document ECE/ENERGY/GE.4/2006/1 was adopted without amendment.

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Note: all documentation and presentations delivered at the meeting are available on the UNECE website at: <http://www.unece.org/ie/se/coal/cmm.html>

### III. ELECTION OF THE CHAIRMAN OF THE BUREAU OF THE AD HOC GROUP OF EXPERTS (Agenda Item 2)

5. The meeting elected a new Chairman, Mr. Roland Mader (Germany), to serve the remainder of the Bureau's two-year term. Mr. Mader was nominated from the existing Bureau.

6. Following his election, Mr. Mader gave opening remarks. He stated that his goal for the Ad Hoc Group of Experts on Coal Mine Methane is for it to be known as an expert group that takes its tasks seriously and delivers tangible results including creating awareness, establishing best practices and providing expert advice. Mr. Mader further noted that the success of the Ad Hoc Group of Experts is dependent upon its members' active participation including their support, ideas and contributions and he strongly encouraged the active participation of each member.

### IV. ELECTION OF ONE NEW MEMBER TO THE BUREAU (Agenda Item 3)

7. The election of Mr. Mader as Chairman of the Bureau created a vacancy in the existing Bureau, and an Item was placed on the Agenda to allow for election of a new Bureau member. The Bureau, however, determined that it was not necessary to fill the vacancy before the election of the next Bureau.

8. The Bureau is composed of: Mr. Roland Mader (Germany), Chairman; Vice-Chairmen Mr. Yuriy Bobrov (Ukraine), Mr. Oleg Pluzhnikov (Russian Federation), Mr. Grigoriy Present (Kazakhstan), Mr. Jacek Skiba (Poland), and Mr. Stanislav Zolotykh (Russian Federation).

### V. ADOPTION OF THE TERMS OF REFERENCE (Agenda Item 4)

9. The meeting adopted the draft final Terms of Reference of the Ad Hoc Group of Experts (Annex I to the Provisional Agenda for the second session of the Ad Hoc Group of Experts on Coal Mine Methane, ECE/ENERGY/GE.4/2006/1). The final terms of reference are annexed to this report.

### VI. ACTIVITIES AND PRIORITIES OF THE UNECE PROGRAMME ON SUSTAINABLE ENERGY AND MATTERS FOR CONSIDERATION BY THE AD HOC GROUP OF EXPERTS (Agenda Item 5)

#### Documentation:

- (i) ENERGY/2005/6: Report of the meeting of the Extended Bureau of the Committee on Sustainable Energy, 14 December 2005; and
- (ii) ENERGY/2005/65: Report of the fourteenth session of the Committee on Sustainable Energy.

10. Mr. George Kowalski, Director of the UNECE Industrial Restructuring, Energy and Enterprise Development Division (IREEDD), briefed the Ad Hoc Group of Experts on issues relating to the UNECE generally and, more specifically, to the Sustainable Energy Section of the IREEDD. Under the reforms, the Sustainable Energy programmes already in place will continue

to function as before the reform; however, the reform calls for the Committee on Sustainable Energy to also strengthen activities in the fields of energy efficiency, cleaner energy production, energy security and diversification of energy sources. In addition, the Committee on Sustainable Energy will streamline its activities and improve cooperation with other relevant institutions, in particular the IEA and the Energy Charter.

11. In closing, Mr. Kowalski commended the Group of Experts on its aim to identify the challenges and opportunities to support capture and use of methane from coal mines. He encouraged the Group of Experts to remain focused and productive by targeting a limited number of discrete and achievable objectives and tasks to be successful, and recommended that it look for areas of mutually beneficial cooperation with other international organizations and multilateral activities.

12. The meeting noted the information provided.

VII. UNECE EXTRABUDGETARY PROJECT ON “DEVELOPMENT OF COAL MINE METHANE PROJECTS IN CENTRAL AND EASTERN EUROPE AND THE CIS” AND REPORT ON CRITERIA FOR FINANCING COAL MINE METHANE PROJECTS (Agenda Item 6)

Documentation:

ENERGY/GE.4/2004/2: Project on “Development of CMM Projects in Central and Eastern Europe and the CIS”.

(a) Part I: Update on Status of the Project

13. The secretariat provided a status report on the UNECE extrabudgetary three-year project “Development of CMM Projects in Central and Eastern Europe and the CIS”. The U.S. Environmental Protection Agency is providing funding of US\$205,000 under a cooperative agreement to the UNECE to support the three-year project.

14. The agreement was awarded in September 2004; however, work under the agreement was delayed due to efforts by the UNECE secretariat to seek alternative procedures that would reduce administrative overhead charges and provide additional funds to the project. These efforts were unsuccessful, and the secretariat proceeded with the work under the agreement in the third quarter of 2005.

15. In the fourth quarter of 2005, the secretariat issued contracts to secure the services of a financial expert and a coal mine methane (CMM) expert to assist the UNECE in meeting the project statement of work. The contracts were awarded in January 2006 to Mr. Karl Schultz (United Kingdom) as an expert on coal mine methane and Mr. Deltcho Vitchev (United Kingdom) as an expert on project finance. The first activity under the project is a workshop on project finance conducted during the second session of the Ad Hoc Group of Experts.

(b) Part II: Workshop on Financing Coal Mine Methane Projects

16. The meeting held a workshop on CMM project finance on 31 January 2006. The

workshop was planned and delivered by the secretariat and the two consultants. Although the objective of future workshops is to present practical information on lessons learned from actual case studies, this workshop was more theoretical in nature as the project is in the initial stages. Mr. Schultz and Mr. Vitchev acknowledged that capital for project development is available, especially now that the carbon markets under the Kyoto Protocol are developing. However, they emphasized that the CMM industry must develop the appropriate financial skills to be successful in accessing the capital.

17. The workshop consisted of four focus areas addressing the following issues:

- (i) Mr. Karl Schultz – “Considering Coal Mine Methane Project Options” ;
- (ii) Mr. Deltcho Vitchev – “Criteria for Selection of Investment Project Proposals”;
- (iii) Mr. Deltcho Vitchev – “Facilitating CMM Finance - Presenting Projects to Financial Institutions”; and
- (iv) Mr. Karl Schultz – “Project Integration and Management”.

18. Considering Coal Mine Methane Project Options: The CMM resource base in Central and Eastern Europe and the Commonwealth of Independent States (CEE/CIS) is significant, especially in Kazakhstan, Poland, the Russian Federation, and Ukraine but there may be project opportunities in other countries such as the Czech Republic and Romania. There are many benefits to capturing and using CMM and these are outlined in the referenced background paper. Key factors in evaluating use options are: (1) the gas quantity, quality and reliability; (2) technical feasibility; (3) markets; and (4) the ability to finance the project.

19. Criteria for the Selection of Investment Project Proposals: Mr. Vitchev presented 10 key criteria that can serve as general guidance for projects seeking institutional finance and that will be used by the UNECE to assess support of projects under the extrabudgetary project. To facilitate the submission of projects and to assist project developers and the mining community in developing bankable projects, Mr. Vitchev presented a “CMM Investment Project Development Project Identification Form,” a four-page document requesting basic information on potential projects that could be used as the basis for development of a business plan. It is available in English and will be translated into Russian. Any entity wishing to be considered under the UNECE project must submit a completed Project Identification Form as a first step. It is currently the secretariat’s intent that the forms will be considered public information and posted on the website for the extrabudgetary project.

20. Facilitating CMM Finance - Presenting Projects to Financial Institutions: Mr. Vitchev delivered a presentation on the types of financing vehicles that could be available for CMM investments. These include self-equity, favourable tax incentives, debt, guarantee facilities, leasing arrangements, export credit agencies, public to private finance initiatives, global financing mechanisms such as the Global Environment Facility, and specialized funds. This section of the workshop also presented the basic components of a business plan, and Mr. Vitchev emphasized the critical nature and importance of a well-prepared plan.

21. Project Integration and Management: Mr. Schultz delivered the final presentation of the workshop. The intent was to examine management of the risks associated with integrating the operation of a CMM project into the mining operation. In addition, this presentation also considered managerial integration. Mr. Schultz recommended structuring the best qualified,

most integrated team while ensuring that all partners are motivated by mutually beneficial incentives to optimize project design and operations. He also emphasized the importance of having a project manager who is an effective, knowledgeable and experienced coordinator.

22. The workshop closed with a discussion on the topics presented with the following comments from participants:

- (i) Early high risk capital is very expensive. Vendors able to provide funding in the amounts necessary to finance CMM projects are typically very risk averse, and it is unlikely that they will be interested in providing such capital. The vendors will probably wait until more CMM projects are implemented demonstrating their viability and profit potential;
  - (ii) The suggestion was made that any financial analysis of a CMM project should monetize the mine safety benefits in addition to the energy production to ascertain the total economic benefit of such projects. While all delegates acknowledged the potential mine safety benefits of CMM projects, several delegates registered concern over valuation of a life in calculating the costs and benefits of a project;
  - (iii) A delegate noted that they have had difficulty securing capital from external investors because of investor's limited control over mining operations. As a result, many project developers wish to separate the mine degasification, or upstream, aspect of a project from the methane utilization, or downstream, activities. The mining operation and the mine safety regulatory authority, rather than the investor, will always retain control over the methane degasification system. Therefore, investing in the mine degasification system is unattractive for developers of CMM utilization projects;
  - (iv) A delegate stated that the European Commission is currently evaluating the prospect of coal mine methane being included in the European Trading Scheme after 2012;
  - (v) Another question asked was which type of organization is most likely to approach a coal mine operator today to develop a CMM project. According to Mr. Schultz it is likely to be a firm or person interested in acquiring the carbon credits to a project. Mine operators should be prepared that all aspects of a transaction are negotiable, and many investors today are not interested in financing feasibility studies preferring that they already be complete and ready for due diligence reviews.
- (c) Part III: Update on the GEF Project "Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation"

23. The secretariat (UNECE IREEDD) provided an update on the Global Environment Facility Project, "Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation" (Report of the Seventh Session of the Ad Hoc Group of Experts on Energy Efficiency Investments for Climate Change Mitigation ENERGY/WP.4/2005/9). The project includes approximately US\$7 million from several donors including the GEF, and has three primary objectives: to create a Public/Private Partnership Fund, to develop skills allowing for project sponsors to prepare bankable documents, and to promote institutional and policy reforms to promote energy efficiency and renewable energy projects. The project, provisionally approved

by the GEF Board in November 2005, is of interest and relevance to the Ad Hoc Group of Experts on Coal Mine Methane because CMM projects are included in the broader definition of renewables in GEF project document. Mr. Sambucini indicated that final steps are being taken in the first half of this year to make the Fund operational.

24. The meeting:

- (i) Took note of the material provided;
- (ii) Agreed upon the importance of supporting and promoting the Project on “Development of CMM Projects in Central and Eastern Europe and the CIS”; and
- (iii) Agreed to continue following the progress of the EE21 Project.

#### VIII. QUESTIONNAIRE FOR THE AD HOC GROUP OF EXPERTS ON CMM (Agenda Item 7)

##### Documentation:

ECE/ENERGY/GE.4/2006/3: Questionnaire for the Ad Hoc Group of Experts on CMM

25. Working with the Bureau of the Ad Hoc Group of Experts on Coal Mine Methane, the secretariat prepared a questionnaire for the members of the Group of Experts (ECE/ENERGY/GE.4/2006/3). The questionnaire is intended as a tool for members to assist the Bureau and the secretariat to develop an informative and effective programme of work. The questionnaire is in all three official ECE languages and sent to members via email on 29 December 2005.

26. As of 31 January 2006, 29 members had submitted responses, and the secretariat delivered a brief interim report on the responses received thus far. Based on the preliminary results of the questionnaire, areas of possible focus include additional focus on use of low concentration methane and methane in or near the explosive range, continued study of methane degasification and mine safety, and project finance and project development. In addition, there is interest in attempting to develop a uniform set of terms and standards. The responses also indicate that one of the most valuable activities that could be undertaken by the Group of Experts are workshops on specific issues of interest.

27. The meeting:

- (i) Took note of the material provided;
- (ii) Recommended that the questionnaire be sent out again in an attempt to receive input from members of the Ad Hoc Group of Experts who had not responded as of 31 January 2006;
- (iii) Recommended that the questionnaire also be sent to members of the Methane to Markets Coal Mine Methane Subcommittee and Project Network;
- (iv) Agreed that the secretariat will prepare a report on the responses to the questionnaire and disseminate this report to assist the Group of Experts develop its future programme of work; and
- (v) Agreed that Group of Experts would examine the issues of interest already noted including utilization of methane in the explosive range, and possibly hold workshops or other activities to examine these issues in greater detail.

IX. UPDATE ON THE METHANE TO MARKETS PARTNERSHIP TO ENHANCE CLEAN ENERGY SOURCES AND REDUCE GREENHOUSE GAS EMISSIONS  
(Agenda Item 8)

28. Ms. Pamela Franklin (U.S. Environmental Protection Agency, United States of America) presented an update on the Partnership's activities since December 2004. The Partnership has added two new members, Canada and the Republic of Korea, since the initial ministerial meeting in November 2004. The second meeting of the Coal Subcommittee was hosted by the UNECE in April 2005 (ENERGY/GE.4/AC.1/2005/1). The third and most recent meeting of the Coal Subcommittee was held in Buenos Aires in November 2005. Ms. Franklin also highlighted M2M CMM activities including US Trade & Development Agency feasibility study grants to China and Ukraine, the USAID cooperative programme with Ukraine to deploy long-hole in-mine drilling technology, and Japanese government support for the Jincheng project in China.

29. Ms. Franklin identified key activities in the M2M action plan related to the coal sector. The Partnership is developing a white paper on regulatory issues, preparing recommendations for adopting uniform technical standards and terminology, and holding workshops on market, technical, and policy issues. In addition, the Partnership is planning a "Project Expo" in mid- to late-2007 to present project opportunities to developers and investors. She suggested that the UNECE and the Ad Hoc Group of Experts would continue to play an important role in the success of the Partnership by continuing efforts to promote financing of CMM projects, supporting the planning and execution of a successful Project Expo, hosting workshops and conferences, and leading the effort to establish standard terminology and technical standards.

30. Ms. Franklin concluded her presentation with an overview of the global market for coal mine methane including country-by-country summaries. Currently 12 countries have CMM projects, and over 200 CMM recovery and use projects are in place at active and abandoned mine resulting in avoided methane emissions of 3.8 billion cubic metres of methane per year.

31. Ms. Franklin announced the next meeting of the Coal Subcommittee of the M2M Partnership. It will be held in conjunction with the 2006 International Coalbed Methane Symposium in Tuscaloosa, Alabama USA on 23 May 2006. More information on the meeting and the M2M activities can be found at [www.methanetomarkets.org](http://www.methanetomarkets.org).

32. The meeting:

- (i) Took note of the information provided;
- (ii) Requested additional information on the Project Expo as it becomes available; and
- (iii) Agreed to continue close cooperation with the Methane to Markets Partnership and to support the activities of the Partnership as recommended by Ms. Franklin.

X. REPORT ON THE TASK FORCE ON THE ECONOMIC BENEFITS OF IMPROVING MINE SAFETY THROUGH THE EXTRACTION AND USE OF COAL MINE METHANE  
(Agenda Item 9)

33. The update was provided by the Chairman of the Task Force, Mr. Raymond C. Pilcher (Raven Ridge Resources, United States of America). The Task Force was created out of a strong desire by the Group of Experts to expand the discussion on coal mine methane to include upstream technical issues relating to methane degasification in addition to mine methane utilization.

34. The first session of the Task Force was held on 29 April 2005 in Geneva (ENERGY/GE.4/2005/2). The meeting was attended by representatives from the following UNECE member countries: Germany, Kazakhstan, Poland, Romania, Russian Federation, Slovakia, Ukraine, United Kingdom, and United States of America. In addition, representatives from Australia, China, and the International Labour Organization (ILO) participated.

35. At the first meeting the members discussed and agreed on the draft Terms of Reference for approval at the second session of the Task Force. The Task Force also established a programme of work that entailed the following elements: (1) development of a template to prepare case studies of successful and unsuccessful methane drainage programmes around the world; (2) preparation of the actual case studies using the template; (3) development of guidelines and best practices for cost-effective methane drainage programmes based on the case studies and discussions among Task Force members; (4) coordination with the ILO as it updates its Code on Safety and Health in Coal Mines; and (5) dissemination of information through the UNECE website, a CD-ROM, and/or workshops.

36. The second session of the Task Force was originally scheduled for 30 January 2006; however, the programme of work following the first session was delayed for many reasons. Therefore, the Bureau in consultation with the secretariat determined that it would be appropriate to postpone the second session to a later date. In its place, the members of the Task Force held an "informal" session on 30 January. Mr. Pilcher reported on the results of the informal working meeting. Attending the meeting were representatives from Australia, Germany, Kazakhstan, Romania, Russian Federation, Ukraine, and the United States of America. Mr. Pilcher presented a draft template for case studies and sought comments.

37. Australia and the Russian Federation commented that the case studies should include a business plan because it is necessary to make a business or economic case for methane drainage, and participants agreed with this position.

38. Germany commented that the template and resulting case studies must define the interface where mine degasification becomes an emission. Germany, Ukraine and Australia also noted that that it could be very difficult to gain access to the data requested for the case studies, especially the cost data.

39. The Ukraine delegation stated that the case studies should be comprehensive considering not only issues directly related to the coal extraction but also the environmental issues and the economic impacts of mine closure. It also noted that case studies should consider retrofitting of existing degasification systems rather than replacement. With very deep mines, Ukraine also recommended that degasification of deep mines should be studied. Finally, Ukraine suggested that abandoned mines be included in the case studies.



40. The United States suggested that the value of mine accidents be quantified in the economic analysis of the case studies including the cost of rescue operations and the cost of repairing the damage caused by a methane explosion or outburst.
41. Australia, Germany and Kazakhstan all expressed strong interest in sharing their experience and technology.
42. The ILO was not present at the informal meeting but noted through correspondence that it remains interested in the work of the Task Force and suggested that the Task Force participate as observers when the revised draft Code on Mine Safety and Health is discussed in May 2006.
43. The meeting:
- (i) Agreed that the work of the Task Force on Mine Safety is consistent with the goals and objectives of the Ad Hoc Group of Experts and should continue;
  - (ii) Agreed that the Task Force should hold its second session in the future at a time that is convenient to its members;
  - (iii) Agreed that members of the Task Force will submit comments on the template to Mr. Pilcher. He will revise it as appropriate and then deliver the template to the secretariat for translation into Russian;
  - (iv) Agreed that the Russian Federation and the United States of America will prepare the first case studies; and
  - (v) Agreed that the secretariat will distribute copies of the draft ILO code when it is released in March 2006, and the secretariat and the Bureau of the Task Force will participate in the working sessions on the code, at the ILO in May 2006 in Geneva upon receipt of invitation.

XI. FACILITATING GLOBAL COOPERATION IN THE DEVELOPMENT AND  
IMPLEMENTATION OF PROFITABLE COAL MINE METHANE PROJECTS  
(Agenda Item 10)

(a) Part I: Ukraine

44. The delegation of Ukraine, led by Mr. Vadim Chuprun (Governor of Donetsk Region, Ukraine), Mr. Volodymir Novikov (First Deputy Minister, Ministry of Coal Mining Industry, Ukraine), and Mr. Borys Gryadushchyy (Director, Donetsk Research Institute of Coal Mining, Ukraine) spoke on the importance of the coal industry in the Donetsk region of Ukraine noting that Donetsk is a major industrial state with 55 million tonnes of coal production capacity. The Government of Ukraine has succeeded in closing over 50 non-productive mines and is very interested in utilization of the methane from the active and closed mines. Ukraine has a natural gas demand of 750 million cubic metres per year, and CMM can contribute to lessening the dependence on imported natural gas.

45. To make use of the methane, Ukraine requires funding for infrastructure for improved degasification and processing. In addition, Ukraine will seek to create the appropriate policy and legislative framework to encourage investment in the coal sector, and CMM projects in particular. This is necessary to properly assess the resource base, identify project opportunities, and create an attractive investment climate. The Delegation noted that the Government of Ukraine is working with the World Bank on an initial economic assessment of the coal sector.

The Ukraine delegation also identified several ongoing projects that demonstrate its commitment to encourage CMM recovery and use including a large power project at the Zasyadko Mine, and a joint Ukraine-United States project to transfer long-hole horizontal drilling technology to Ukraine in cooperation with Australia at the Krasnolimanskaya Mine.

46. The Ukraine delegation proposed cooperation in several areas including holding a workshop in Donetsk, cooperating and sharing scientific and technical information, and working with the Group of Experts on upgrading the quality of drained methane to 50%.

(b) Part II: PromGAZ

47. Mr. Alexander Karasevich and Mr. Nikolay Storonskiy (PromGAZ, Russian Federation) presented their report on coalbed methane (CBM) and CMM projects in the Russian Federation. The CBM resource base in the Russian Federation is significant amounting to 49 trillion cubic metres of methane. The targeted basins in the Russian Federation are the Kuznetsk Basin (Kuzbass) with about 25% of the CBM resource and the Pechorsky Basin with around 4% of the resource base. The Kuzbass compares very favourably with the San Juan Basin in the United States of America.

48. Previous attempts at developing the CBM resources in the Russian Federation have run into many obstacles including being overshadowed by traditional hydrocarbon production, adverse economic conditions, lack of appropriate technology and experience, and lack of state support. Since 1998, however, Gazprom has successfully moved toward planned commercial production in 2008, and is currently operating a successful pilot test project in the Kemerovo oblast which includes the Kuzbass.

49. Gazprom has spent considerable time studying CBM development in the United States of America and has been able to adapt US technology to regional and local mining and geological conditions in the Russian Federation and many other countries. Production technologies utilized include hydro-fracing (>85%), cavitation, open hole enlargement, and horizontal drilling. In focusing on the Kuzbass, Gazprom studied 121 geological structures and 26 areas before selecting 4 priority areas with 1.5 trillion cubic metres of CBM resources on which it is operating nine test well sites. Thus far, Gazprom has drilled 4 test wells and has prepared the geological and technological basis for commercial CBM production including developing the technologies and facilities for CBM production in preparation for full commercial production in 2008.

50. Mr. Karasevich and Mr. Storonskiy also discussed cooperation with other institutions in the Russian Federation on the Rosnauka CBM/CMM research and development project on utilization in addition to production. The research has four primary areas of focus: Norms and Standards, Technologies for Production and Processing, Computer Modelling, Economic Evaluation and Ecological Safety.

(c) Part III: Microbial Methane Generation

51. Mr. Thomas Thielemann (BGR, Germany) discussed the potential for microbial methane in German coal associated gas. As utilization of mine methane in Germany has increased significantly since the late 1990s, interest in this issue has been growing in Germany and in a

number of other countries. Based on analytical work undertaken thus far, Mr. Thielemann has determined that the coal gases in the Ruhr area of Germany contain a mixture of thermal and microbial methane, but that microbial generation rates are still not clear. For future activities, Mr. Thielemann indicated that next steps include extended sampling, determination of microbial methane generation rates, site-related mass balance, and examining enhancement of microbial methane generation (deep) coal measures.

(d) Part IV: Carbon Markets and CMM

52. Mr. Jelmer Hoogzaad (Climate Focus, Netherlands) discussed the current state of the carbon markets and the interest in CMM projects. Mr. Hoogzaad noted that the carbon markets are maturing quickly and capitalization of carbon funds has grown significantly from US\$270 million in 2004 to US\$950 million in 2005. For Clean Development Mechanism (CDM) projects in developing countries, the CDM Board has developed an approved methodology for calculating emission reductions from underground mines removing a significant hurdle. There are CMM projects under CDM review, but none have been approved yet. There are four approved Joint Implementation (JI) projects out of a total of 97 approved projects, but government approval in some countries including the Russian Federation and Ukraine can be difficult because internal frameworks are still developing. Still Mr. Hoogzaad suggested that the prospects for CMM projects are good with the high global warming potential of methane and comparatively strong returns on investment.

(e) Part V: Russian Federation UNDP GEF Project

53. Mr. Oleg Tailakov (Ugletetan, Russian Federation) provided an update on the UN Development Programme/Global Environment Facility (GEF) Project – Removing Barriers to Coal Mine Methane Recovery and Utilization in the Russian Federation. The project began in October 2003 and is currently scheduled to end in October 2007. The objective of the project is to strengthen the institutional and financial framework in order to promote CMM projects and facilitate the implementation of selected demonstration projects. The budget for the project is US\$8.3 million including US\$3.1 million from the GEF.

54. Following a request for proposals, the Komsomolets Mine has been chosen as the location of the pilot project. The pilot project is considering four utilization options: (1) methane combustion in boilers for heating mine shafts in winter; (2) fuel for a Methane Buster vacuum pump for mine degasification; (3) electricity generation by internal combustion engines; and (4) utilization in flow-reversal reactors for oxidizing dilute mine ventilation air methane (VAM) and producing useable energy through a heat exchanger. The analysis shows that CMM can be used as boiler fuel for US\$1 per tonne of carbon dioxide and electricity can be produced at a cost of US\$3.2 per tonne of carbon dioxide.

55. Other important aspects of the project are the establishment and capitalization of a CMM recovery and utilization company and improvement of the legal and regulatory framework. Both activities are in progress. A charter exists for the CMM utilization company and company bylaws are being discussed with the Administration of Kemerovo Oblast and the Ministry of Economic Development and Trade. Regarding legal reforms, legislative proposals have been drafted and submitted to the Kemerovo government.

(f) Part VI: Romanian Coal Mine Methane

56. Mr. Emil Ghicioi and Mr. Constantin Lupu (INSEMEX, Romania) provided an update on prospects for coal mine methane projects in Romania. Both active and abandoned mines have methane emissions, and Romania is actively seeking partners to develop projects. All mines in the Jiu Valley of Romania have ventilations systems. Flow rates are between 666 and 6685 m<sup>3</sup>/min and methane concentrations of 0.1 – 0.5 % by volume. The maximum allowable concentration is 1.0%. In addition, methane drainage is employed in Romania through in-mine wells drilled into the sealed gob (goaf) areas. The average length of the boreholes is 30-90 metres. In total, seven mines in Romania have methane degasification systems in place and operating. For the entire Jiu Valley, ventilation emissions account for 94% of all coal mine methane emissions. However, at certain mines, drained emissions account for 14-26% of total methane emissions. At the Lupeni Mine, 39% of the methane drained is actually utilized. The methane concentration of the gob gas is 50-60% and the flow rate of methane is between 1,325 and 6,000 m<sup>3</sup>/day. The CMM at Lupeni is used to fire two on-site boilers. Mr. Ghicioi and Mr. Lupu emphasized that Romania is very interested in finding partners to fully utilize their mine methane resources.

57. The meeting took note of the information provided.

XII. ACTIVITIES OF AND COOPERATION WITH VARIOUS INTERGOVERNMENTAL  
AND NON-GOVERNMENTAL ORGANIZATIONS

(Agenda Item 11)

58. The meeting provided the opportunity for delegations to propose workshops to the Group of Experts and to provide notice of upcoming events.

59. The secretariat identified acceptable criteria for UNECE to be a co-sponsor of a workshop of conference principally organised by other organisations and held outside of UN facilities.

- (a) The UNECE is unable to provide direct funding for cosponsorship of workshops/conferences unless otherwise provided by extrabudgetary resources;
- (b) The workshop/conference must be a not-for-profit event, although a registration fee may be charged to participants to recover or offset the actual costs of holding the event; and
- (c) The subject matter and goals of a conference must be consistent with the goals of the Group of Experts.

60. The meeting received proposals from three organizations requesting that the UNECE and the Ad Hoc Group of Experts co-sponsor workshops.

- (a) Mr. Dmitry Yakovlev (The Research Institute of Mining Geomechanics and Mine Surveying (VNIMI), Russian Federation) proposed holding a workshop on the “Geomechanical and Geodynamic Aspects of High-Efficiency Extraction of Coal Mine and Coalbed Methane,” in St. Petersburg, Russian Federation from 20-22 September 2006. The objectives of the

workshop are to: (1) define priority directions for the development of more effective methane degasification systems; and (2) to improve the investment profile of CBM and CMM project to encourage implementation of these types of projects. Other organizers include PromGAZ, the UNECE Working Party on Gas, the Ministry of Sciences of the Russian Federation, GazProm, Severstalresurs, and the Siberian Coal Company;

- (b) Mr. Borys Gryadushchyy (Donetsk Research Institute of Coal Mining, Ukraine) and Mr. Yuriy Bobrov (Executive Director, Association of Donbass Mining Towns) proposed a technical workshop to be held in Ukraine in the fourth quarter of 2006 or the first or second quarter 2007. The proposal called for a workshop to be held in Donetsk that would address technical and market issues related to coal mine methane capture and utilization. The workshop would have the support of the federal Ministry of Coal Industry and the Donetsk Regional Administration; and
- (c) Mr. Jacek Skiba (Central Mining Institute, Poland) proposed holding a workshop in the third or fourth quarter 2007 in the region of the Upper Silesian Coal Basin to focus on technology transfer and cooperation among members of the Ad Hoc Group of Experts. Mr. Skiba noted that CMI has developed substantial expertise in mine degasification and methane utilization and would like to host a forum to facilitate and encourage information exchange among experts.

61. Mr. Oleg Tailakov (Ugletetan, Russian Federation) announced the upcoming conference, "Coal Mine Methane: Recovery, Utilization, Investment Opportunities" to be held in Kemerovo, Russian Federation under the sponsorship of the UNDP GEF coal mine methane project in the Russian Federation. The Kemerovo Regional Administration will cosponsor the event. Mr. Tailakov provided conference dates of 22-24 March 2006 but the event has since been moved to 19-21 June 2006.

62. The meeting:

- (i) Took note of the information on the conference in Kemerovo, Russian Federation to be held 19-21 June 2006;
- (ii) Agreed that Ad Hoc Group of Experts on Coal Mine Methane would co-sponsor the workshop in St. Petersburg, Russian Federation in September 2006;
- (iii) Agreed that Ad Hoc Group of Experts on Coal Mine Methane would co-sponsor the workshop in Donetsk, Ukraine in late 2006 or early 2007; and
- (iv) Agreed that Ad Hoc Group of Experts on Coal Mine Methane would co-sponsor the workshop in Poland in the third or fourth quarter 2007.

### XIII. PROGRAMME OF WORK (Agenda Item 12)

63. The secretariat noted that the programme of work would be reviewed and considered for approval by the UNECE Committee on Sustainable Energy at its fifteenth session on 28-30 November 2006 in Geneva.

64. The secretariat summarized the discussions on the key activities for the Ad Hoc Group of Experts to focus on in its programme of work:

- (i) The Group of Experts will continue to coordinate activities with the International Methane to Markets (M2M) Partnership when opportunities arise offering useful synergies for both parties. Specific activities include potential work to develop standardized terminology and technical standards, identifying sources of finance and encouraging investment in CMM projects, supporting a project expo in 2007, and publicizing M2M events to the Group of Experts and encouraging their participation;
- (ii) The UNECE secretariat will continue work on the extrabudgetary project “Development of Coal Mine Methane Projects in Central and Eastern Europe and the Commonwealth of Independent States”, and anticipates identification of one to two projects in the Russian Federation in 2006 and possibly initiation of work in Kazakhstan in 2006;
- (iii) The secretariat will resend the Questionnaire to the Ad Hoc Group of Experts to encourage greater response. Upon receipt of a sufficient number of responses, the secretariat will prepare a report on the responses and disseminate the report to members ahead of the third session of the Ad Hoc Group of Experts. The M2M Partnership will also make the Questionnaire available to their Project Network members and Coal Subcommittee members;
- (iv) The Task Force on the Economic Benefits of Improving Mine Safety through the Extraction and Use of Coal Mine Methane will continue to develop case studies of successful and unsuccessful methane degasification programmes worldwide and guidelines on best practices. In 2006, the Russian Federation and the United States of America have agreed to develop the first case studies. This task force will report to the Group of Experts;
- (v) The Task Force will also participate as observers when the draft ILO Code on Mine Safety and Health is presented to the ILO member countries for discussion in May 2006;
- (vi) The Ad Hoc Group of Experts will begin examining the issue of the utilization of low-concentration methane and methane in or near the explosive range. The secretariat will explore further interest in holding a workshop on this issue based on the discussions at the second session; and
- (vii) The Ad Hoc Group of Experts and the UNECE will be a co-organizer or co-sponsor of three coal mine methane workshops: St. Petersburg, Russian Federation in September 2006; Donetsk, Ukraine in the fourth quarter 2006 or the early part of 2007, and in Poland in third or fourth Quarter 2007.

65. The meeting:

- (i) Agreed that its programme of work for the coming year should seek to focus on the key activities highlighted by the secretariat, notably those related to financing CMM projects, utilization of low concentration methane and methane in the explosive range, and mine safety through the work of the Task Force; and

- (ii) Noted that the third session of the Ad Hoc Group of Experts on CMM has been rescheduled from 15-16 November 2006 to the first quarter of 2007.

#### XIV. OTHER BUSINESS (Agenda Item 13)

66. The secretariat advised the meeting that the documentation for the session had been posted to the website and presentations made during the meeting would become available shortly on the UNECE website at: <http://www.unece.org/ie/se/coal/cmm.html>.

#### XV. ADOPTION OF THE REPORT OF THE SECOND SESSION (Agenda Item 14)

67. It was agreed that a concise report of the session focusing on the conclusions and recommendations would be prepared by the secretariat and circulated to the Bureau of the Meeting for approval, upon which it would be circulated to member countries.

## ANNEX

### **TERMS OF REFERENCE OF THE AD HOC GROUP OF EXPERTS ON COAL MINE METHANE**

(adopted 31 January 2006)

The Ad Hoc Group of Experts on Coal Mine Methane, an intergovernmental body launched in December 2004 to specifically support the activities of the Ad Hoc Group of Experts on Coal in Sustainable Development in the area of coal mine methane (CMM), is established for a period of two years by the Committee on Sustainable Energy. The Ad Hoc Group of Experts will carry out, under the Committee's guidance, activities related to development and profitable recovery and use of CMM and abandoned mine methane (AMM), with a specific focus on the three pillars of sustainable development: economic, social and environmental – recovery and use of CMM otherwise emitted mitigates climate change, improves mine safety and productivity, and generates revenues and cost savings.

The tasks of the Ad Hoc Group of Experts are:

- (a) to promote and provide support where applicable to the UNECE extrabudgetary project on "Development of Coal Mine Methane Projects in Central and Eastern Europe and the Commonwealth of Independent States (CIS)". This project, which is financed by the United States Environmental Protection Agency (US EPA) and the UN Foundation, will run for three years commencing in 2005;
- (b) to seek to facilitate financing of CMM projects in Central and Eastern Europe and the CIS, including through actively engaging in a dialogue with the international finance community to understand their needs and the barriers to funding of CMM projects in this region;
- (c) to provide a forum for exchange of information and experience on ongoing activities in the area of CMM development and for enhanced collaboration and cooperation thereof;
- (d) to identify and seek to mitigate the problems associated with the creation of incentives for CMM recovery;
- (e) to establish a clear link between the economic benefits and the mining of gassy coal seams based on the safe drainage and use of the gas, and to facilitate this through the establishment of a dedicated Task Force with membership from the technical, business and regulatory communities;
- (f) to explore opportunities for the CMM sector, in particular in UNECE member States with economies in transition, to participate in and benefit from the various public and private greenhouse gas emissions markets;
- (g) to identify any significant new developments affecting CMM, in particular in UNECE member countries; and
- (h) to seek to strengthen inter-agency cooperation and to cooperate and collaborate with all stakeholders, including other governmental and non-governmental organizations and the business community/private sector, in order to realise the above objectives.