



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
CINCINNATI, OHIO 45268**

**ANNUAL MEETING REPORT OF
THE NATO CCMS PILOT STUDY ON
CLEAN PRODUCTS AND PROCESSES**

**May 7-12, 2006
Kalyon Hotel, Istanbul, Turkey**

Goals of Phase II of this Pilot:

- S To promote cooperation for improving the common pollution landscape by stimulating cross-national dialogues and collaboration**

- S To share knowledge on the methods, tools, and technologies for making cleaner and sustainable products and processes possible**

The 9th annual meeting of the NATO CCMS Pilot Study, Clean Products and Processes, was held in Istanbul, Turkey from May 7 to 12, 2006. Of the 31 countries involved in this pilot, 22 sent their representatives to this meeting. Mr. E. Sanguineti of Public Diplomacy Division, Threats and Challenges Section, NATO Headquarters, Brussels, also attended the meeting and gave a talk entitled, CCMS and the Security through Science Programs. As is usually the tradition, the delegates visited several industrial facilities to observe clean production techniques. These include: the famous Tubitak Marmara Research Center, Kocaeli Chamber of Industry, and Ford Autosan, an automobile assembly facility. The meeting was organized and efficiently run by the host, Prof. Aysel Atimtay of the Middle Eastern Technical University (METU), Ankara. The meeting was mainly sponsored by NATO CCMS and US EPA. Additional local sponsors were Ford Otosan, Tubitak Marmara Research Center, and Kocaeli Chamber of Industry. Typically one delegate per country attended this meeting. However, United States of America, Czech Republic, Belgium, and Turkey each had more than one attendee at this meeting. The countries represented in this meeting were Turkey, USA, UK, Portugal, Slovenia, Belgium, Spain, Greece, Italy, Lithuania, Israel, Ukraine, Egypt, Russia, Slovakia, Bulgaria, Czech Republic, Rumania, Moldova, Hungary, Canada, and Croatia.

The meeting started at 6 pm on Sunday evening (May 7) with a reception and get-together. On Monday morning (May 8) at the opening session several local dignitaries spoke: Prof. Dr. Fatos Y. Vural, Vice Rector of METU; The Mayor of Istanbul; and Mr. Gazi Kaya, the Deputy Governor of Istanbul.

Here is the summary of the various activities:

Following introduction of the delegates, meeting agenda overview (Dan Murray), and a report of the 2005 meeting in Alesund, Norway (Dan Murray of USA on behalf of Annik Fet who had a conflict), Monday's technical presentations started at 1. pm. with the following:

- E. Sanguineti (NATO CCMS): CCMS and the security through science programs
- J. Swindall (UK): Sustainability and green chemistry
- A.A. Martins and T.M. Mata (Portugal): Integration of a sustainability indicators framework in corporate strategy
- P. Glavic (Slovenia): Approaches for minimization of industrial water usage
- C. Block (Belgium): Sustainable processes in the steel industry in Flanders
- J. Coca (Spain): Evaluation of several zeolites as adsorbents for sulfur compounds by inverse gas chromatography

From 3:30 to 4:45 pm a mini-workshop was organized and conducted by Subhas Sikdar on the metrics for sustainable technologies. This workshop is a follow-up to the one held in Alesund the previous year. We presented a proposed framework based on the work of Sikdar, Martins and Mata (collaboration between USA and Portugal) and the discussion that followed consisted of reaction to the presented framework and suggestions of alternate frameworks.

Tuesday May 9 was scheduled for a field trip to visit three technical sites of interest to this Pilot. First we visited the premier research center in Istanbul, Marmara Research Center (MRC) in Tubitak. In the afternoon we visited Kocaeli Chamber of Industry and the Ford automobile production center. The emphasis was observing cleaner production techniques used in these manufacturing facilities. At the Marmara Center we were greeted by Dr. Mehmet Demirel, Vice President – Strategic Planning and Business Development. In addition to visit to the laboratories we were given two presentations:

- I. Baylakoglu (Senior Researcher): EU directives for electronics industry
- A. Baban (Vice Director): Sustainable concepts towards zero outflow municipality

On Wednesday May 10 was devoted to the one-day topical symposium on water recycle and reuse. Typically we invite several guest speakers to augment talks delivered by the delegates. The session was chaired by Aysel Atimtay (Turkey). These are the talks delivered:

Topical Symposium on Water Recycle and Reuse

- D.J. Murray (USA): US EPA's guidelines for water reuse
- E. Drioli (Italy): Membrane engineering in water reuse and recycle
- M. Kitis (Turkey): Treatment of campus wastewaters by membrane bioreactor for potential reuse in irrigation
- G. Gallios (Greece): Textile wastewaters: water reuse and dyestuff removal and/or degradation
- A. Baban (Turkey): Water segregation and reuse in textile industry

- F. Shadman (USA): Water use, reuse, and recycling in micro- and nano-manufacturing
- A.B. Tanik (Turkey): Studies on some selected urban wastewater treatment plant effluents of Turkey to search their reuse potential in agriculture
- J. Staniskis (Lithuania): Water saving, reuse and recycling in industry: cleaner production opportunities
- G. Akcin (Turkey): Efficient management of wastewater, its treatment and reuse in the Mediterranean countries - EMWATER
- C. Forgacs (Israel): Problems and applications of water reuse in Israel
- W. Zadorsky (Ukraine): Improving water quality through low-cost upgrading of a water treatment facility accompanied by abandonment of chlorination

On Thursday May 11 the Pilot delegates presented results of their own research, as follows:

- C. Vandecasteele (Belgium): Treatment of the residual fraction of domestic waste: the Flemish case
- K.T. Ewida (Egypt): Treatment of wastewaters through adsorption of heavy metals by natural clay
- G. Gallios (Greece): Industrial wastewater treatment: metals recovery and water reuse
- G. Kagramanov (Russia): Wastewater treatment with integrated membrane-electroflotation method
- E. Drioli (Italy): Application of new indexes for comparing membrane operations to traditional techniques
- M. Vaclavikova (Slovakia): Arsenic removal from waters using magnetically modified zeolite
- A. Atimtay (Turkey): Color removal from textile wastewaters by changing surface properties of adsorbent material (Clinoptilolite)
- S. Tepavicharova (Bulgaria): Thermodynamic modeling of inorganic chemical species in natural polluted waters
- A. Komar (Czech Republic): The national cleaner production program: benefits assessment
- F. Bozek (Czech Republic): Utilization of cleaner production and the best available technology in a food processing plant
- C. Forgacs (Israel): Enforcement of environmental regulations in Israel – 2005
- V. Harceag (Romania): Urban water services development – Romanian perspective
- A. Stratulat (Moldova): Cleaner production activities in Moldova
- G. Harangozo (Hungary): Factors behind cleaner production in the Hungarian manufacturing industry – results of a survey
- J. Coca (Spain): Carbon dioxide emissions in Spain: main sources and capture possibilities

The conference dinner was held in the evening of Thursday.

Technical presentations by delegates continued on Friday May 12.

- G. Rochon (USA): Networking satellite ground stations to support global science: toward a distributed shared spatial data archive and grid access to near real-time remote sensing data
- A. Omelchenko (Canada): Efficient technology for precious metals extraction from

secondary raw materials

- M. Vaclavikova (Slovakia): Red mud – a potential sorbent for removal of heavy metal cations

The rest of the time on Friday was devoted to choosing the location and host for next year's meeting and a wrap-up discussion conducted by Subhas Sikdar. We concluded that this was a highly successful meeting. We recognized many spin-offs that have occurred because of the pilot and many more that are in the making. The Pilot has fostered goodwill and understanding among delegates from different countries with diverse background and a spontaneous willingness to join in teams on selected projects. In the Alesund meeting, the Egyptian delegate Dr. Kamal Ewida volunteered to start a newsletter to keep the delegates abreast of development between meetings. This could not be done because of health problems in his family. That being behind him now, he again pledged to get this going. Several ideas of the topical symposium for 2006 were offered, and we decided to make a decision later.

For the 2007 meeting only one proposal from Portugal was offered. Dr. Antonio Martins and Dr. Teresa Mata of the University of Porto are the designated hosts for the 2007 annual meeting of the Pilot project.

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