

A. Impact of Advances in Science and Technology on the Chemical Weapons Convention

In 2002, IUPAC held a workshop to assess the impact of new science and technology on the Chemical Weapons Convention [CWC] and provided a report to the Organization for Prohibition of Chemical Weapons [OPCW] for the 1st CWC Review Conference in 2003. Last year, OPCW asked IUPAC to repeat such a study in preparation for the 2nd Review Conference to be held in April 2008.

A task group, chaired by Leiv Sydnes, planned and conducted a workshop in Zagreb, Croatia, 22-25 April 2007. Considerable help was provided by the US National Academies [the IUPAC NAO in USA], which housed and funded the workshop secretariat.

Sixty-eight workshop participants, from 30 countries, came from government, chemical industry, chemical research institutes and universities, including 17 representatives of government departments, government laboratories and National Authorities. Twenty-two speakers and commentators described the challenges facing the CWC and presented information on topics ranging from advances in organic synthesis, drug development in the post-genome era, use of nanoparticles, and aerosol drug delivery to the impact of the internationalization of the chemical industry and the potential for use of microreactors to produce large amounts of chemicals in a setting that might be difficult to recognize as a chemical plant.

All attendees participated in a four breakout sessions, where small groups explored the impact of material presented in lectures on future threats to the CWC. They formulated guidance on ways that technological advances might help in enforcement of the CWC and in possible treatment of casualties from possible use of chemical weapons on civilian populations. Workshop homepage: http://www7.nationalacademies.org/IUPAC-OPCW_Workshop/

A 30-page report on the outcomes of the workshop and the conclusions to be drawn has been prepared for submission to the OPCW and its 182 member states. The findings and recommendations of the workshop are organised into five groups: (a) technical challenges to the CWC itself; (b) technical challenges to the way the CWC is being implemented; (c) improvements in the field of chemical protection; (d) opportunities with regard to the fostering of international cooperation in the peaceful application of chemistry; and (e) requirements and opportunities with regard to raising awareness of the CWC in the scientific community, and the need for incorporating these issues into chemistry education.

The report will be published, perhaps in a shortened form, in *Pure and Applied Chemistry*.

B. Chemical Security Engagement Program

As an outcome of IUPAC's projects with the Organization for Prohibition of Chemical Weapons [see accompanying document], we were approached by the Chemical Security Engagement Program [CSP] of the US Department of State to organize a workshop on *Chemical Safety and Security in the 21st Century*. This workshop will be held in Kuala Lumpur, Malaysia on August 26, immediately after the 12th Asian Chemical Congress, under IUPAC Project 2007-021-1-020. Michael Booth will present a talk describing COCI's programs in chemical safety.

The principal objectives of the CSP are to prevent scientists with chemical expertise in regions with a strong terrorist presence from supporting terrorist organizations or proliferant states, and preventing terrorists from procuring materials or equipment that could enhance a chemical weapons capability. The CSP is a new program that complements the work of OPCW, which is focused on state programs, rather than terrorist threats. CSP's initial approaches are to engage governments in pilot countries and to enlist the help of professional organizations, such as IUPAC and national chemical societies. CSP would like to provide training for chemical personnel in priority countries to:

- Enhance chemical safety practices
- Promote training to meet western standards [e.g., ISO, GLO, safer technologies]
- Promote a security culture and increase threat perception
- Provide risk/vulnerability assessments as needed
- Increase transparency and accountability for dangerous chemicals and technologies

The workshop in Kuala Lumpur is intended to gain an understanding of gaps in chemical safety and security, with particular emphasis on south and southeast Asia; to raise awareness of chemical threats among practicing chemists in the region; and to investigate ways in which IUPAC, CSP, governments, industry and others can work together to begin to fill gaps. Follow-on efforts might include training in best practices in both academia and industry, and sharing ideas on risk management strategy.

It appears that current programs and projects of both COCI and CCE might fit well with these objectives. The CSP has arranged a task order contract with IUPAC to fund the Kuala Lumpur workshop and potential follow-on activities. A sum of USD 125 000 has been obligated, of which perhaps USD 75 000 might be needed for the workshop, but that amount will be known only after the end of August. The meetings of CCE and COCI in Torino provide an opportunity to discuss potential programs that might benefit from cooperation with CSP.

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