

## IUPAC Committee on Chemistry and Industry Report to the Bureau – 2006

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### Summary

The Committee on Chemistry and Industry (COCI) is the focal point in IUPAC for issues of importance in chemistry-related industries. COCI emphasizes sharing best practices globally and focusing on capacity building in the developing world. In 2006 COCI has organized its activities into five Program Areas and initiated interactions with the IUPAC Divisions and Standing Committees. Our goals are to establish new collaborative projects consistent with COCI's terms of reference, within the framework of IUPAC's strategic goals.

Highlights of the biennium so far include:

- Eight new trainee candidates have been accepted into the IUPAC-UNESCO-UNIDO Safety Training Program (STP), and a new STP Fellow was trained in October 2005 at AstraZeneca facilities in the UK.
- A Conference on Occupational Health and Safety in East Africa, Nairobi, Kenya, September 2006, has been organized.
- An article has been published in *Chemistry International* on industrial aspects of the public appreciation of chemistry.
- A mechanism has been proposed for a Secretariat-led effort to recruit and retain Company Associates, with COCI guidance and active participation.
- A proposal has been submitted for a regional Conference and Workshop entitled, "Chemistry in a Changing World – New Perspectives Concerning the IUPAC Family," scheduled for March 2007 in Gothenburg, Sweden.
- A new "COCI Corner" column in *Chemistry International* has been inaugurated with an article on COCI activities in the July/August 2006 issue.
- New Company Associates have been recruited in the USA, UK, and Kuwait.
- The World Chemistry Leadership Meeting at Turin will be organized with COCI participation. The topic will encompass the evolving international chemical regulatory environment.
- New Representatives to COCI have been nominated from each of IUPAC's Divisions and Standing Committees, and COCI representatives on each Division and Standing Committee have been offered.
- The latest issue of "IUPAC Projects of Interest to Industry" has been published and sent to NAOs and CAs worldwide.

## **Background**

The IUPAC Committee on Chemistry and Industry (COCI) strives to fulfill its objectives as set forth in its Terms of Reference. These principal objectives are paraphrased here:

- Advise the President and Executive Committee on options and actions by which IUPAC could become more attractive to increased participation by scientists in industry;
- Develop and maintain an active program to recruit, guide and inform Company Associates;
- Develop liaisons with national and international associations that represent chemical industries, chemical societies, and international bodies involved in scientific and industrial development; and
- Initiate and maintain a portfolio of projects with implications for industry.

All of these objectives are intended to contribute to the achievement of the following IUPAC strategic goals:

- Objectively addressing global issues in the chemical sciences;
- Assisting chemistry-related industry in its contributions to sustainable development, wealth creation, and improvements in the quality of life;
- Fostering communication among individual chemists and scientific organizations, with special emphasis on the needs of chemists in developing countries;
- Contributing to the public appreciation of chemistry; and
- Broadening the IUPAC membership base and enhancing diversity in membership in IUPAC bodies.

The 2005 Vice President's Critical Assessment favorably mentioned COCI's efforts in 2004-5, particularly in project coordination and in public appreciation of chemistry. A call was made in the VPCA to be more aggressive in promoting IUPAC's CA program and to address the role of IUPAC as an NGO and its coordination with UNESCO and other agencies.

COCI has made significant progress in these areas. The following will describe in more detail the structure, function and activities of COCI in relation to these objectives and goals.

## **Structure and Function**

### **Meetings**

#### COCI Strategy/Project Planning Meeting, RTP, NC USA, April 2006

COCI held a strategy and project-planning meeting at Secretariat headquarters in Research Triangle Park, NC USA in April 2006. Strategy and organization were reviewed. COCI reconfirmed its strategic emphasis on projects that share best practices globally and focus on:

Capacity building

Public appreciation of chemistry  
The authoritative role of IUPAC as an NGO  
Reputation and trust  
Enabling public and political debates.

Attendees toured the research facilities of Syngenta in Research Triangle Park, NC during the meeting.

Continuing the organizational structure developed by TM and COCI past chair David Evans, COCI has a leadership team which oversees projects and budget along with Programs led by Titular Members and staffed by Members and National Representatives. This structure is designed to facilitate generation of new projects and to foster collaboration with IUPAC Divisions and Standing Committees and with the industrial chemical community. For all projects generated by COCI, industrial financial support is necessary, and industrial support is in place for all current projects.

Finance and Budget is headed by COCI Secretary and Treasurer Mike Booth. The function is charged with managing the project and operating budgets, assisting with reimbursements of allowable expenses, and tracking spending on COCI projects and contracts with Projects Coordinator and TM Aldo Alles.

The Projects Coordination function, led by Alles, assists members in preparation and submission of project proposals, coordinates sources of funding inside IUPAC and externally, liaises with the IUPAC Projects Committee and Evaluation Committee, and monitors progress on and completion of projects.

The Health, Safety and Environmental Program is led by Mark Cesa, with assistance from Booth, Alles, AM Khalida Al-Dalama, and AM Esmá Toprak. This program administers the IUPAC-UNESCO-UNIDO Safety Training Program, along with regional workshops on Health, Safety and Environmental Management.

COCI's efforts on Public Appreciation of Chemistry are led by Evans. COCI works with CCE on its program in PAC and provides support and input from the industrial perspective, assuring coordination with and differentiation from the myriad efforts in PAC worldwide.

The NAO/Company Associates Recruitment and Retention Program is led by TM Akira Ishitani, with Evans and TM Jonas Unger. Responsibilities include recruitment and retention of Company Associates in collaboration with the Secretariat, recruitment of National Representatives, and communication with NAOs and CAs on IUPAC matters of interest to industry.

The NGO/IGO/Trade Association Program is led by TM Colin Humphris, with NR Bernard West (Canada) and TM Alex Pokrovsky. The participants in this program build liaisons with trade associations such as CEFIC and ACC, make connections with government and non-governmental organizations such as UNESCO and ICCA, and assist IUPAC's establishment of NGO and IGO roles with relevant organizations. As such, this program provides access to IUPAC as the "Scientific Straight-edge" on urgent industrial/governmental issues.

NR and Bureau Member Alan Smith (UK) leads the Division and Standing Committee Collaboration Program. Responsibilities include recruitment of representatives from the Divisions and Standing Committees to COCI, and of COCI members as representatives of COCI on the Divisions and Standing Committees.

COCI Annual Meeting, Chicago, IL USA, July 2006

The annual meeting of COCI was held in July 2006 at the suburban Chicago, IL USA research facilities of INEOS USA LLC and BP. This meeting dealt primarily with progress on existing projects and development of new projects. In addition, representatives from Division VII (Tom Perun) and CHEMRAWN (John Malin) attended to provide perspectives on their programs and projects and to suggest possible areas for collaboration. As a result of this meeting and other discussions, representation by COCI at the CCE and CHEMRAWN annual meetings was arranged, and new areas for possible collaboration were identified. COCI members also visited the corporate research facilities of Nalco Chemical Co. in Naperville, IL and toured Fermilab in nearby Batavia.

Below are summaries of progress and status on activities in all the COCI program areas.

**Accomplishments**

1. In the **Health, Safety and Environmental Program**, there were substantial accomplishments in the IUPAC-UNESCO-UNIDO Safety Training Program (STP). First, a highly successful and well-attended STP Workshop was held at the Beijing IUPAC Congress. Trainees gave presentations on their activities in their home countries, a plenary lecturer, Dr. Mu Shan Jun gave an excellent talk on the state of HSE practices in Chinese industry, and a panel discussion on improvements to the STP was held. More information can be found at: <http://www.iupac.org/projects/2004/2004-031-1-022.html> and [http://www.iupac.org/publications/ci/2005/2706/1\\_beijing.html](http://www.iupac.org/publications/ci/2005/2706/1_beijing.html).

In October 2005 STP Fellow Prof. Said Bayomi of Mansoura University, Egypt received training in AstraZeneca facilities in the UK. The STP Brochure and application form have been updated; these files, along with Prof. Bayomi's written report, are available for download at the STP Web page: <http://www.iupac.org/standing/coci/safety-program.html>.

Due in large part to the Call for Applicants in *Chemistry International*, written by Fabienne Meyers ([http://www.iupac.org/publications/ci/2006/2802/iw3\\_safety.html](http://www.iupac.org/publications/ci/2006/2802/iw3_safety.html)), eight trainee candidates from among over ten new applicants have been accepted into the Safety Training Program and are awaiting assignment to Host Companies. The new trainee candidates are from Nigeria, Uruguay, Morocco, India, Ghana, Tanzania, Zimbabwe, and Pakistan. A similar call for Host Companies will appear in an upcoming issue of *CI*. There is a current shortage of Host Companies, and all COCI members have been asked to canvass the CAs in their home countries for interest in participation. Host Companies provide for local expenses for trainees during their visits.

A proposal for a Workshop on the STP as part of the 2007 IUPAC Congress in Turin has been submitted to the Congress organizers.

COCI has collaborated with STP Fellow Kelvin Khisa to organize a Conference on Occupational Health and Safety in East Africa in September 2006 in Nairobi, Kenya (<http://www.iupac.org/publications/ci/2006/2803/2803-pp35-37.pdf>; <http://www.iupac.org/projects/2005/2005-046-1-022.html>). The budget for this conference includes industrial financial support. Growth of the HSE Program is being sought via new sources of funding and publicity through, for example, ICCA and related organizations. A similar conference for the Middle East is in the early planning stages.

2. The Program on **Public Appreciation of Chemistry** is working closely with CCE to provide industrial perspectives on this critical activity of the Union, and Evans has published

an entertaining article in *CI* on industrial aspects of public appreciation of chemistry ([http://www.iupac.org/publications/ci/2006/2804/3\\_Evans.html](http://www.iupac.org/publications/ci/2006/2804/3_Evans.html)). Also in preparation is a guide for chemists making presentations to members of the public on scientific issues.

CD-ROMs containing the DIDAC educational materials in Chinese have been prepared in collaboration between Pokrovsky and Jinliang Qiao of Sinopec. As noted in earlier reports to the Bureau, oversight of activities of IUPAC in DIDAC is being transferred to CCE.

3. Within the **NAO and CA Recruitment and Retention Program**, the issue of CA recruitment and retention has gotten serious attention. The committee is in agreement that Company Associates view these well-known contributions of IUPAC as the principal benefits of CA membership:

- Nomenclature
- Products such as InChI
- Standards, physical constants, etc.
- Publications and monographs
- Conferences

Also recognized is that, while several NAOs have active and successful recruitment programs for Company Associates and use the CA subscriptions to finance their activities (such as Young Observer programs or travel grants to IUPAC conferences and Congresses), many NAOs do not actively recruit CAs and already rely on the Secretariat to handle dues collection and communication regarding their CAs.

In response to this situation and the continuing interest in IUPAC in recruiting and retaining CAs, a mechanism for a Secretariat-led effort to recruit and retain Company Associates, with COCI guidance and active participation, has been drafted by Evans, Ishitani and Unger and discussed with Secretariat staff at the April and July COCI meetings. This mechanism contains the following recommendations:

- Leadership by a Secretariat employee as Program Leader, who will have overall responsibility for program, be accountable to the IUPAC Executive Committee for progress, and be responsible for CA recruitment with the proactive assistance of COCI and the NAOs. The Secretariat will then be the key repository for information and records on the program, such as the CA database. The Program Leader will handle invoicing and receipt of annual CA subscriptions for those NAOs who wish to have Secretariat take this responsibility, and for record-keeping and informational support for NAOs who actively take on CA recruitment.
- COCI will appoint a TM to assist the Program Leader directly. This person will coordinate personal regional contacts by all COCI members to both industry and NAOs and will coordinate preparation of materials for CA recruitment, including brochures, project lists, etc. This person will then be the focal point within IUPAC for communication of CA benefits and activities, and will communicate the results of project and program developments in COCI to enhance the perception of benefits to CAs.

The proposal for this new CA recruitment and retention process will be sent separately to the Secretariat and ExCom members in advance of the Madrid Bureau meeting, for their comments and endorsement.

A draft of a revised CA Brochure has been completed and is now being edited for printing. COCI would like to explore options for funding for the revised CA brochure (see above) to underpin the CA recruitment and retention effort, and we suggest that the Secretariat support this activity.

Very importantly, new Company Associates in the USA, UK ([http://www.iupac.org/publications/ci/2006/2801/iw3\\_newCAs.html](http://www.iupac.org/publications/ci/2006/2801/iw3_newCAs.html)), and Kuwait ([http://www.iupac.org/publications/ci/2005/2706/iw4\\_newCAs.html](http://www.iupac.org/publications/ci/2005/2706/iw4_newCAs.html)) have been recruited since the Beijing Congress and General Assembly. Evans and AM Khalida Al-Dalama have been very successful at CA recruiting in the UK and Kuwait.

Communication with CAs is an important goal in the CA and NAO Program. In order to ensure that programs and projects in COCI and IUPAC are congruent with the needs of the chemistry-related industries, Unger has submitted a project proposal for a regional Conference and Workshop entitled, "Chemistry in a Changing World – New Perspectives Concerning the IUPAC Family," (Project No. 2006-030-1). At this Conference and Workshop, planned for Gothenburg, Sweden in March 2007, the views and needs of NAOs and CAs will be gathered and addressed to foster new collaborations. Industrial financial support has been secured for this Workshop. We hope that this Conference will serve as a model for future regional meetings worldwide.

Ishitani, Evans and Unger have all made personal visits to their NAOs and Company Associates to review activities in IUPAC and COCI and to recruit new Company Associates. Unger has visited companies and universities in Italy to recruit new CAs, an Italian NR, and participants in COCI activities at the 2007 Congress and General Assembly in Turin.

A new "COCI Corner" column in *CI* has been started with an article on COCI activities in the July/August 2006 issue (<http://www.iupac.org/publications/ci/2006/2804/2804-pp17-19.pdf>). The COCI Corner will be a regular feature in *CI* and will be the place where COCI news, articles from and by Company Associates, and developments in industrially-related chemistry will be found. The increase in the number of articles on industrially related topics in *CI* is a source of pride for COCI. See for example this article on nanotechnology in sports, authored by Smith: ([http://www.iupac.org/publications/ci/2006/2801/2\\_smith.html](http://www.iupac.org/publications/ci/2006/2801/2_smith.html)) and this article on petrochemical technology in China: ([http://www.iupac.org/publications/ci/2006/2803/1\\_wang.html](http://www.iupac.org/publications/ci/2006/2803/1_wang.html)).

4. The **NGO/IGO/Trade Associations Program** is a focus for NGO status for IUPAC with groups involved in activities of industrial chemical interest and for collaboration with international groups that impact the chemical sciences. COCI will help organize the World Chemistry Leadership Meeting at Turin, whose topic will center on the evolving international chemical regulatory environment. Humphris and Cesa have consulted with IUPAC Past President Leiv Sydnes on the content of the 2007 WCLM. Included in the 2007 WCLM program will be presentations on the impact of REACH and SAICM, and the scientific developments and issues impacting the chemical sciences from industrial and academic perspectives.

In addition, close association with UNESCO, facilitated by Pokrovsky, has greatly assisted COCI efforts via financial support for several of COCI's projects.

Finally, in recognition of the importance of Responsible Care in the development of best practice in the developed and developing world, West is preparing a new project proposal

for the first in a series of case studies/monographs on the responsible handling, manufacture and distribution of chemicals.

5. New Representatives from each of IUPAC's Divisions and Standing Committees to COCI have been recruited, and COCI representation on each Division and Standing Committee has been offered, as part of the **Division/Standing Committee Collaboration Program's** efforts to build new collaborative projects of industrial interest.

Division / Standing Committee	Representative to COCI
Division I	Prof John Dymond (UK)
Division II	Dr. Markku Leskela (Finland)
Division III	Prof Janine Cossy (France)
Division IV	Dr William Work (USA)
Division V	Dr Ales Fajgeli (Austria)
Division VI	Dr Keiji Tanaka (Japan)
Division VII	Dr Tom Perun (USA)
Division VIII	Dr Alan McNaught (UK)
CCE	Prof. Peter Mahaffy (Canada)
CHEMRAWN	Dr John Malin (USA)

These representatives will receive relevant communications on COCI activities and will be invited to COCI meetings. COCI would like to suggest that we explore possibilities for enhancing operating budgets as needed to fund travel for representatives from Divisions and SCs, and for COCI representatives on the divisions and SCs, to foster collaborations and generation of new projects.

At the COCI annual meeting, presentations were made by Tom Perun of Division VII and by John Malin of CHEMRAWN on their activities, with focus on potential relevance to industry and possible future collaboration with COCI. At that meeting and elsewhere, arrangements were made for COCI representation by Pokrovsky at the CCE annual meeting in Seoul and by West at the CHEMRAWN annual meeting in Canada. A possibility for collaboration between CCE, Division VII, and possibly COCI was noted on preparation of CD-ROMs containing the Division VII educational modules and glossaries on toxicology. At the CHEMRAWN meeting, ideas for possible round-table discussions at the 2007 Council meeting were listed.

Evans provided a critical review from COCI's perspective of a project proposal on Chemistry for Biology.

The latest issue of "IUPAC Projects of Interest to Industry" has been published and sent to NAOs and CAs worldwide ([http://www.iupac.org/standing/coci/Div-Projects-sum\\_04-2006.pdf](http://www.iupac.org/standing/coci/Div-Projects-sum_04-2006.pdf)).

### **Plans and Challenges**

Here are listed COCI's plans for the remainder of the biennium:

- Coordinate or sponsor at least one symposium and/or workshop in Turin; for example, the STP Workshop (see above), and/or industrial focus at the WCLM (see above).
- Work toward recruitment of at least one new Italian CA, and gain representation from Italian scientists on activities of COCI interest at Turin.
- Initiate up to four new projects/workshops/conferences by end 2007, with industrial support for each project/workshop/conference.
- Take full advantage of opportunities for publicity of IUPAC and Industry; such as the "COCI Corner" in Chemistry International, and enhanced communication with NAOs and CAs.
- Achieve full participation by COCI members and NR's in COCI programs.
- Achieve increased diversity and inclusiveness, in all their forms, in COCI membership.
- Continue to seek industrial funding, including contributions in kind, for IUPAC's important programs.

### **Acknowledgments**

COCI recognizes with gratitude the new project and operating budgets granted to the Committee for the 2006-7 biennium, and in particular is grateful for the carryover of unused operating budget funds from the previous biennium into the 2006-7 project budget. COCI also gratefully acknowledges the financial support of UNESCO in several of its projects.

COCI also hails the exceptional leadership of past chair David Evans in 2004-5. Under his direction COCI developed an organizational structure that has facilitated significant achievements by the committee. Many of these have been highlighted recently in *Chemistry International*

([http://www.iupac.org/publications/ci/2006/2801/4\\_divroundups.html](http://www.iupac.org/publications/ci/2006/2801/4_divroundups.html))

and in the IUPAC Biennial Report for 2004-5

(<http://www.iupac.org/news/archives/2006/04-05Report.pdf>).

These accomplishments have positioned COCI to make integral contributions to IUPAC in coming years.

Finally, the Chair gratefully acknowledges the enthusiastic participation and noteworthy accomplishments of the members of COCI.

Mark Cesa  
8 September 2006