

Priority Areas and Groups for Tuesday break out session:**1. Ethics in Chemistry**

This group will focus on assisting with the Pearson project proposal directed toward a code of conduct/ethics for IUPAC. It might also review the collaborations between IUPAC and OPCW over educational activities and think about other ways to focus CCE's work on ethics. Perhaps ask how this might be incorporated into International Year of Chemistry activities?

Possible Outcomes: Review of draft project proposal. Think about how to initiate a process that will maximize input from various stakeholders and obtain buy-in within IUPAC. List other possibilities for IUPAC initiatives on ethics, and ways to work with UNESCO and other partners.

Group Members.

Graham Pearson

Peter Mahaffy

Eva Åkesson (part of the time)

Report from Graham Pearson:

- A. The project proposal has been modified so that is now focused towards the formation of guiding principles that would be recommended by IUPAC to be incorporated, as individual NAOs judged appropriate, into national codes.
- B. It is recognized that the target audiences for such guiding principles are both the next generation of chemists and those currently engaged in chemistry.
- C. Furthermore, these guiding principles need to be incorporated into a continuing process – so that ethical and other consideration - are addressed for each project.
- D. The issue of guiding principles – covering ethical and other considerations – is one that it is important that IUPAC should be seen to be addressing as it would contribute to an improved public perception of chemistry in a similar way to the Responsible Care programme. It could also potentially contribute to the International year of chemistry.

2. International Year of Chemistry

This group will focus on (a) drafting text for IUPAC letters to NAOs and ANOs requesting their support for declaring 2011 an International Year of Chemistry and asking them to contact their appropriate UNESCO permanent representatives to support this initiative when it comes to the General Assembly. The group might then spend most of its time brainstorming about (a) what messages to communicate in the International Year, (b) what partners ought to be invited to participate in a significant way with preparing for the year and launching the year, (c) how to measure the success of the International Year.

Possible Outcomes: Prepare draft of text to pass on to secretariat, today, if possible. List the publics IUPAC might target for Intl Year of Chemistry. Summarize ideas for both messages and mechanisms for communicating them.

Our group was working on the problem of the International year of Chemistry. The target audience and the ways to promote the idea have been discussed. It was recommended to use the experience of Spain and Germany on their national Years of Chemistry. It was recommended to work through NAOs and national Chemistry Societies.

The result was the draft of the letter to be sent to NAOs, IUPAC members, national chemistry societies, etc., on behalf of the President, prof. B. Henry.

3. ICCE and Conferences of Interest to CCE

Assist the 20th ICCE with review of program and logistics. Identify 10 new sources for funding proposals with suggestions of how to obtain the right contact information. Review conference coordinator portfolio and description and how information about ICCE can be publicized, and how CCE members can be informed about other conferences. Discuss overall directions for future ICCE conferences, and what CCE hopes to achieve through them. Articulate siting criteria for future ICCE Conferences.

Possible Outcomes: Recommendations to Mauritius regarding 20th ICCE passed on to Ramasami and the International Advisory Committee. Recommendations regarding conference portfolio passed on to chair and secretary. Discuss how and when to communicate with CCE a 'thought piece' about the future of ICCE.

Report of the Discussion Group of the CCE

Members

Choon Do, Ponnadurai Ramasami, Mort Hoffman, Liberato Cardellini, Warren Beasley

Recommendations

1. That the ICCE along with CEI be promoted strongly as the public face of the CCE
2. That the major outputs of the Conference (Plenary Lectures) be published in the CEI
3. That electronic copies of the Plenary Lectures be made available to participants at the conference
4. That Plenary Lecturers be required to address the theme of the conference and also participate in relevant conference symposia and/or workshops
5. That the budget of a conference be based on the following attendance :
 - i. 150 – 200 full fee paying international visitors
 - ii. 50 – 75 local full-fee paying participants
 - iii. 75 – 100 subsidised participants
6. That the budget be at least \$US 250000 with \$US 30 – 50000 in sponsorship
7. That the date of the ICCE take account of other well attended National conferences e.g. August conferences in the USA
8. That July be considered as a serious alternative to an August date
9. That the conference be promoted in conjunction with other conferences in the Region as well as significant tourist opportunities in the region
10. That a conference website be established soon after the conference venue is awarded and that website be updated regularly
11. That the Conference website handle all communications with the organizers such as registration, accommodation, tours, and airfare specials
12. That conference bidders be able to demonstrate that it has the support of the NAO, the financial resources to host the conference and a venue which allows a wide range of lectures, workshops, symposia and field visits.

4. Flying Chemist's Program – Chiu, Lamba

Review the two completed FCPs in India and Sri Lanka, and the forthcoming FCP in Manilla. Brainstorm new directions for FCP, mechanisms to ensure that the program meets the needs of requesting countries, mechanisms to provide a substantial roster of resource persons, and mechanisms to administer the program effectively. Identify possible partners with IUPAC on funding, and possible ways to integrate FCP into more general assistance with science education revitalization.

Possible Outcomes: Suggestions for Manilla passed on to Mei-Hung. Suggestions for communication within IUPAC on building a roster of expertise passed on to Mei-Hung. Decide how to advance ideas about new directions, mechanisms, possible partners and work with other disciplines and bring to CCE and other stakeholders for consideration.

Group Members:

Mei-Hung Chiu

Ram Lamba

Masato Ito

5. Learning Outcomes (incl Bologna Process, etc.)

Discuss the role for CCE in meeting its strategic goal of focusing on learner-centred, outcome oriented approaches to chemistry education at secondary and tertiary levels. What is IUPAC best positioned to do with respect to sharing ideas and approaches from the Bologna Process and other such initiatives? How can ICCE conferences and other mechanisms for sharing and disseminating ideas be used effectively?

Possible Outcomes: Sketch out a project proposal that would draw together key expertise within CCE and from elsewhere to focus our efforts. Establish a time-line and participants for refining and submitting the project proposal.

Group Members

The group consisted of 3.5 members, since 2 persons took part in part of the discussion.

The basic question was whether and how CCE should get itself involved in the globalisation of tertiary education in chemistry by trying to find a position on descriptors and learning outcomes, topics which form a vital part of the Bologna process now going on in Europe and covering 46 countries, from Cork to Vladivostok and from Crete to Novaya Zemlya.

It was clear that CCE should not become involved in the globalisation of secondary education in chemistry, as this issue is dynamite!

The discussion was wide-ranging, and it was clear that such a small group could do nothing without support from a number of members of CCE, covering all five continents.

No interest was expressed from the plenum on continuing (or starting?) work on these topics.

6. Green and Sustainable Chemistry

What contributions is CCE most well positioned to make in the area of integrating green and sustainable chemistry into curriculum? What other key partners should we be working with? What's the role for ICCE conferences and other mechanisms for creating high-level conversations and disseminating ideas and approaches internationally. How can IUPAC help bring together existing groups and approaches? How could we assist UNESCO in reviewing the chemistry and approaches in existing microscale activities with a view toward ensuring that green and sustainable chemistry is well represented.

Possible Outcomes: Sketch out a project proposal to work with John Bradley and UNESCO on the review of existing microscale initiatives. Identify a timeline and participants who might create and send to CCE a 'thought piece' on what IUPAC is well-positioned to do in this area.

Group membership:

- Erica Steenberg (chair) - **ES**
- Hemda Garelick (reporter)- **HG**
- Ludo Brandt - **LB**
- Masato Ito- **MI**
- Jim McQuillan- **JM**
- Mulcund S Chorghade – **MSC**
- Mordechai Livneh- **ML**

General Brief

CCE possible contribution to the area of integrating green and sustainable chemistry into the curriculum

Key partners

Role of ICCE conference

Role of IUPAC in bringing groups and approaches together

Update of the UNESCO review of the Microscale initiative

Issues discussed

- Agreement (confusion) on terminology
- Participants who can be approached
- How to disseminate resources
- Update of Microscale

Recommendations

1. Review what is meant by Green Chemistry in different communities (possible mini project?)
2. Ensure that all IUPAC conferences (Glasgow?) and specifically ICCE have a session or at least a lecture on Green Chemistry. **Action HG** to approach the RSC.
3. Have an special issues in Chemical Education International
Action MI and all group members are to send MI contributions.

4. Collect good examples for education (ask division and other organisations) and have a resource on the IUPAC website. Mordechai Livneh has the possible list of names.
Action ES and ML
5. Propose a project on the update of Microscale. Update on the state of the art and hyperlinks to resources. Mulcund Chorghade will propose the project with the help of Mordechai Livneh. **Action ML and MC**
6. Contact the IUPAC Green Chemistry to coordinate action.

Prof Ito provided a list of individuals who may be approached to provide support to project proposal and/or dissemination strategies.

These people are involved in Green Chemistry Education particularly through the Microscale practice

Asia

Prof Chan, Wing-Hong (Hong Kong Baptist University)

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Director of FIACS project on Microscale Chemistry

Organiser of the 1st International Conference on Microscale Chemistry in 2001

Prof Tantayanon, Supawan (Chulalongkorn University, Thailand)

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Prof (retired) Ogino Kazuko (Tohoku University, Japan)

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Director, Microscale Chemistry Network, Japan

Good at English and Chinese languages

Prof Zhou Ninghuai (Hangzhou University China)

Director of the Chinese Microscale Chemistry Centre

Good English

Prof K. V. Sane

Task Group Chairman of IUPAC project 2005-004-1-050 "Flying chemists program" - 2005 visit to India

K.V. Sane <sitah@bol.net.in>.

Asian Green Chemistry

FACs Project in Green Chemistry

Director: Prof Ho, Chee-Chen (Malaysia)

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Mexico

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Organiser of the 2nd International Conference on Microscale Chemistry 2004.

Hemda Garelick