

## Item 11.2: Report of the CHEMRAWN Committee

### August 1999-July 2001

A. Since 1978 twelve CHEMRAWN conferences have been held. Two conferences have been held since the last Council Meeting:

1. CHEMRAWN X: The Globalization of Chemical Education: Preparing Chemical Scientists and Engineers for Transnational Industries We have tried an experiment by holding a series of "mini-CHEMRAWNs" -- having a full day sessions of "Chemical Education To Meet World Needs" as part of other world wide conferences (with \$6000 funding by IUPAC). The first took place at the 16<sup>th</sup> International Conference on Chemical Education, Budapest, August 2000; the second at the American Chemical Society meeting, Washington DC, August 2000, and the third at Pacificchem, Honolulu, December 2000. We are involving members of COCI and CTC in these efforts. CHEMRAWN X concludes by a final session incorporating a Future Actions discussion as part of the CHEMRAWN, COCI, and CTC committee meetings at Brisbane. Abstracts of the papers presented at the three mini-conferences are posted on the IUPAC website to permit continuing discussions. (see: <http://www.iupac.org/standing/chemrawn.html>). The experiment appears to be successful -- gaining many of the objectives and benefits of a major CHEMRAWN conference -- but with greater flexibility, less organizational efforts, broader involvement, continuing discussions, and minimal fund raising.

2. CHEMRAWN XIV "Toward Environmentally Benign Processes and Products" was held at the University of Colorado, Boulder Colorado USA June 9-13 2001. The Green Chemistry Institute worked with the CHEMRAWN committee to develop this world conference centered on what is termed "Green" chemistry, Chemistry for Green Technology, Soft Chemistry, Benign Chemistry, Clean Production, or Sustainable Chemistry —encompassing all aspects and types of chemical processes including synthesis, catalysis, analysis, monitoring, separations, and reaction conditions that reduce impacts on human health, energy consumption, and the environment relative to the current state of the art. This theme built on the effort of the IUPAC Working Party on "Synthetic Pathways and Processes on Green Chemistry" promoted by the Physical Organic Division (III.2), which was founded in 1997 in Geneva. The General Chairman of the conference was Mike Fitzpatrick, President of Rohm and Haas. There were 80 contributed papers, an extensive poster session, and an educational workshop. The total budget was over \$300,000. See [http://cires.colorado.edu/env\\_prog/chemrawn](http://cires.colorado.edu/env_prog/chemrawn).

B. Assessments of CHEMRAWN Conferences:

CHEMRAWN IX: Advanced Materials and Sustainable Development is the subject of the first formal assessment of a CHEMRAWN conference. (See <http://www.iupac.org/standing/chemrawn.html>) While the papers and discussions were found to be most useful for participants, it was felt that the recommendations of the Future Actions Committee failed to have a significant measurable impact. We are planning additional assessments. Research efforts are still underway as part of future actions from CHEMRAWN VII "The Chemistry of the Atmosphere: Its Impact of Global Change" (1991, Baltimore Maryland, USA); this may be our next subject.

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### C. Communications about CHEMRAWN

Communications using the IUPAC website are expected to increase as we look for a way to include interactive discussions on topics from past or proposed conferences.

### D. Conferences being planned:

1. CHEMRAWN XII: African Food Security and Natural Resource Management: The New Scientific Frontiers was to have been held in Nairobi Kenya June 20-27 1999. The conference was postponed to 2000 and moved to Uganda and then cancelled. A meeting in conjunction with Soil Sciences conference in South Africa in 2003 is now being considered to deal with this most critical issue.

2. CHEMRAWN XIII: Chemistry for Cleaner Energy, (possible venue: New Delhi or Bangalore); A formal proposal has been drafted and has been considered by the CHEMRAWN committee at its last two meetings. Considerations are being given to a meeting in conjunction with the Hydrocarbons conference in 2003.

3. CHEMRAWN XV: Fresh Water- Contribution of Chemistry to Quantity and Supply. (Can the fresh water supply be sustained? ) Discussions have continued with government officials and academics in Moldova (with UNESCO encouragement) to hold a regional (or "pre- ?) CHEMRAWN in 2001 or 2002 in preparation for a major conference in France in 2002 or 2003 covering the world problems. The CHEMRAWN committee in November 2000 held a workshop involving a number of water experts to outline topics that could be included in the conference.

4. CHEMRAWN ?? : Innovation its way to the market- the challenge of the 21<sup>st</sup> century. A formal proposal has been drafted for a conference exploring 1) the role of pre-assessment and design, 2) role of micro-pilot plants and pre-assembled unit operations, 3) role of education, 4) costs and techniques of commercialization , and 5) the effects on the innovation process of government regulations and science and technology policies.

5. Other topics. Chemistry of food purity, and chemical aspects of biodiversity have been informally suggested as topics. IUPAC Commission I.2 on Thermodynamics has proposed recently that a CHEMRAWN conference might be a good follow up on the workshop on Thermochemical, Thermodynamic, and Transport Properties of Halogenated Hydrocarbons and Mixtures – looking at methods of production, applications, environmental fate, global warming, and regulatory controls.

E. The CHEMRAWN Committee as we have pointed out previously continues to deal with three issues:

#### 1) Funding:

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Using the current format and objectives, CHEMRAWN conferences are expensive endeavors. Most participants do not have the funds to allow reasonable registration fees; in fact most must be supported in their travel to the meeting and lodging and meals at the meeting. CHEMRAWN conference topics can now be determined more by the interest of funding groups rather than by the importance of the topic itself. IUPAC does not fund the conferences themselves and funds from chemical companies, UN agencies, and NGO's are becoming much more difficult to secure. This places a heavy burden on those organizing the conference.

How can conferences be held in a much more inexpensive manner?  
Are there different types of conferences that can be held; can conferences be held in conjunction with other conferences?

2.) Conference format:

In today's electronic world, can the objectives of the CHEMRAWN committee be accomplished partly by some "on-line" interactions. Are there ways in which key issues on a topic can be developed and recommendations made by an interdisciplinary community?

3) Follow-up actions (Future Actions)

For most CHEMRAWN conferences the recommendations by the "Future Actions Committee" are published and circulated broadly. Some of the recommendations may be implemented, but resources (time of individuals and money) are most often not available to see that a number of recommendations are carried out and that recommended programs are launched by those involved in the CHEMRAWN conference.

How can we build into the conference expenses (and staffing) a commitment to fund some "future actions"? Are there ways to build additional partnerships to see that certain actions are indeed carried out? Do we assure at the outset that the issues of the conference lend themselves to actionable recommendations.

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May 10, 2001 for July 2001