

**DRAFT Minutes of the CHEMRAWN Committee Meeting
IUPAC Congress and General Assembly
Ottawa, Canada August 11, 2003**

Attending: Min Che Chon, Raymond Hamelin, Makoto Imanari, Jerzy Kopytowski, Fedor Kuznetsov, Stanley Langer, John Malin, Patrick Moyna, Parry Norling (Chair), Nthabiseng Audrey Ogude, Ikenna Onyido, Alan Smith, Ayhan Ulubelen, Gary van Loon; Also present for all or part of the meeting: Christoph Buxtorf, Erwin Buncel, Richard Blackburn, Michelle Bushey.

Agenda and Minutes. Dr. Norling presented the meeting agenda. He noted that Dr. Malin had circulated by e-mail the updated version of the Minutes from the September 15-16, 2002 meeting in Paris. No changes were suggested and the Minutes were adopted as written.

Chair's Opening Statement. Dr. Norling outlined his proposed report to the IUPAC Council. He indicated that he would summarize CHEMRAWN XIV and describe the four CHEMRAWN conferences that are currently in planning stages. He noted that, because financial support is often a problem, large conferences can't always be held. The CHEMRAWN committee has been seeking ways to hold smaller conferences or workshops designed to "piggyback" on larger events. The possibility of virtual conferences has also been discussed.

IUPAC Goals. Dr. Norling reviewed how CHEMRAWN conferences meet IUPAC's six goals noting that IUPAC seeks to:

- 1) *Address global issues.* CHEMRAWN events have always been global in scope.
- 2) *Advance research through scientific discussion.* CHEMRAWN XIV certainly accomplished this in the area of Green Chemistry, including follow-up activities including the workshop in Thailand.
- 3) *Assist industry.* This was the primary focus of CHEMRAWN XVI, the innovation CHEMRAWN held at the Ottawa meeting.
- 4) *Help chemical science in developing countries.* This is the mission of the planned CHEMRAWN XII, proposed for Senegal.
- 5) *Enhance chemical education and the appreciation of chemistry.* This was addressed in CHEMRAWN X, the Education CHEMRAWN.
- 6) *Increase diversity in its projects and operating and governing bodies.* CHEMRAWN committee members have always come from diverse nations, and it is noted that gender diversity on the committee is improving.

CHEMRAWN Strategic Planning Review. Dr. Norling and the committee next addressed committee challenges that were outlined in the Strategic Planning session held at the 2002 Paris meeting.

- 1) How should the committee obtain funds to ensure a major impact of CHEMRAWN projects?
- 2) What can we do in addition to holding traditional CHEMRAWN-type conferences?
- 3) CHEMRAWN conferences are valuable, but how can we increase our impact? For example, the conference in Montevideo built a network of analytical chemists in South America. The

young scientists who attended are now active professionals, capable of networking together. Can that effect be measured and duplicated in other events?

- 4) How may we get the right people with the necessary talents on the committee? Leiv Sydnnes, IUPAC Vice-President, feels every National Adhering Organization should have a representative. Talent is always appreciated. Dr. Norling called upon committee members to nominate others to serve as members or as "friends of CHEMRAWN".

Dr. Norling urged the committee to address particular issues, identify world needs and determine when a CHEMRAWN conference is necessary. Committee members raised the following points:

- Normally we have to work with a society or conference organizer with necessary local expertise. Sometimes this also involves organization of a "piggyback" conference rather than a stand-alone CHEMRAWN meeting. (Norling)
- We should collect the future action recommendations in a file, maybe also on the IUPAC webpage. This would help form goals for new conferences. Information on follow-up to past conferences would also be useful, for example, in recommendations advanced for chemistry of advanced materials and atmospheric chemistry. This would improve continuity among conferences. (Kuznetsov).
- An effort was started to review all CHEMRAWN conferences, but stopped because Fabienne Meyers of IUPAC reportedly was doing this in concert with an IUPAC evaluation committee. Yet until now there's only a title on the Website. The review still needs to be done. (Kopytowski)
- Jerry Kopytowski should continue with that project. (Kuznetsov).
- Parry's report to the Council should concentrate on the committee's Strategic Plan. This confirms that the committee is working from a plan, and may result in greater recognition and support for the committee.
- We need to know in which cases Future Actions Committees (FACs) are still active for past CHEMRAWNS. It would be useful to know more about what CHEMRAWN XIV has been doing. In some cases, Future Actions Committees have not existed very long. (Hamelin).
- A major result of CHEMRAWN VII was a project to perform kite-assisted atmospheric sampling in the Amazon basin. Several research papers resulted. (Norling)
- The CHEMRAWN XIV FAC continues to be very active in concert with the ACS-Green Chemistry Institute. They organized a Green Chemistry workshop in Thailand in 2002 and expect to continue this effort in South America during the summer of 2003. The CHEMRAWN VII FAC has ceased operations but ceded its remaining support to the CHEMRAWN XIV FAC.(Malin)

- A Pan American Advanced Studies Institute (PASI) Summer School was held at Montevideo during July 7-17, 2003. It was a spinoff from CHEMRAWN XIV. Teaching staff included 9 U.S. scientists, 1 Canadian, 2 Brazilians, 1 Argentinean, and 4 Uruguayans. There were 22 U.S. students, 1 Ukrainian, 1 Kenyan, 1 Jamaican, 2 Indians (all studying in the U.S.), 6 Canadians, 1 Brazilian, 5 Argentineans and 15 Uruguayans.

The committee heard reports on the following four CHEMRAWN conferences that are being planned.

CHEMRAWN XII: Dr. Ikenna Onyido distributed a vision and mission statement. He noted with pleasure that Prof. Ogude of South Africa has joined the CHEMRAWN committee, which will make it easier to include South Africa in plans for future CHEMRAWN activities.

Dr. Onyido pointed out that Fabienne Meyers has placed documents describing the proposed CHEMRAWN XII on the IUPAC website and also compressed them into an overview published in the March/April version of Chemistry International. CHEMRAWN XII will also be discussed in a future African Academy of Sciences publication. The Third World Academy of Sciences has offered to announce the proposed conference on its website. Several other groups are trying to raise awareness of the proposed meeting. Dr. Onyido is trying especially to publicize CHEMRAWN XII in fora where African scientists meet.

Seeking funding for the meeting, the organizers have approached the World Bank and the Consultative Group for International Agricultural Research (CGIAR). The Executive Secretary of the Third World Academy of Sciences (TWAS) has been very encouraging. Dr. Onyido believes that support will be forthcoming when these groups receive the completed program for CHEMRAWN XII. He has also contacted USAID who agree that the project is consistent with their mission, and has designated a contact person. Support Africa International, an educational funder in Germany, is awaiting a conference prospectus. The International Foundation for Science, in Sweden, has also been contacted. While ISF doesn't support conferences, they do fund research on relevant topics, and would support African scientists who are their grantees and who plan to attend the conference. The World Phosphate Institute (Casablanca) will also contribute to travel of African scientists.

Dr. Thomas Odhiambo of Kenya was contacted about the conference. He works with Ran Forum, a potential cooperative body. Mohammad Hassan, ExSec of TWAS would attend and pay his own way. Dr. Berhanu Abegaz would come. He has done interesting work on plant products and has created a network of scientists in Southwest Africa who would participate.

Dr. Onyido noted that commitments of participation from Senegal have not yet materialized. Communication with Prof. Ndiaye, a key contact in that country, has been very slow because he travels frequently. The draft of a letter to Senegalese President Wade has been delayed. Therefore Dr. Onyido will determine a fallback position. He pledged to keep trying to contact Prof. Ndiaye but with a cutoff date at the end of September.

Dr. Onyido will also press on with other alternatives. A base is needed to provide local support. He reported that he would consider hosting the conference in Nigeria but has hesitated to suggest

it because of public perceptions of security there. The Nigerian Secretary of Agriculture offered to give a lecture in CHEMRAWN XII, but the President will not be enthusiastic about the conference unless it is held in Nigeria.

Dr. Onyido noted that the committee had proposed to wait until 2005 before canceling CHEMRAWN XII. He expressed his hope that it would be possible to wait longer if things go slowly, perhaps until early 2006. Prof. Pieter Steyn was a supporter of the conference. He had suggested piggybacking the meeting with a South African Soils Society. However, SASS responded that, because the meeting in question was a special occasion, i.e., a 100-year anniversary, it would not be appropriate to include CHEMRAWN XII.

Committee members made the following comments:

- The organizers should consider holding a preparatory workshop at the International Congress on Chemistry in Africa, scheduled for June, 2004 in Tanzania (Malin).
- The conference still requires a great deal of preparation. A focus is needed. For example, the conference could discuss ways to eliminate two or three important barriers that limit food production/distribution in Africa. (Kopytowski).
- CHEMRAWN XII should bring together contributions that would support cooperation among the science community, aid organizations and government agencies. India has achieved agricultural self-sufficiency. Help is needed for African growers to become self-sustaining also (Hayes).
- A conference with an IUPAC label should be organized in Africa to increase the IUPAC presence. This might help increase the number of African countries that are full members of IUPAC. (Blackburn)
- It might be possible to hold the conference in South Africa. The organizers should pursue the Stellenbosch option in case the Senegal opportunity doesn't work out. Most of the issues being discussed could be decided at the ICCE in Arusha. The Minister of Agriculture in South Africa is a woman who could bring a woman's perspective to the issues. Practical solutions are needed, not exalted science. (Ogude).
- Korea and Japan had many ammonia plants producing 2000 tons/day. Could some of these resources be relocated to Africa? (Chon)
- Doing a conference in the Third world is like solving a puzzle. Nevertheless, CHEMRAWN organizers realized at an early stage few conferences were organized in developing countries. They decided to hold meetings on food supplies (Philippines, Africa) and environmental chemistry (Latin America) in the developing world.
- Suggestions of speakers would be welcome. (Ogude)

- The Scandinavian agencies NORAD and SAREC might be interested in funding a conference. (Langer)

CHEMRAWN XV: Chemistry for Water. Dr. Hamelin noted this conference was discussed at a special meeting on August 10, 2003. The minutes of that meeting will be sent to everyone concerned. He summarized for the committee that CHEMRAWN XV is a very ambitious project. The organizers have obtained the High Patronage of the President of France, support from 5 academies, UNESCO, UNEP, the French Chemical Society and the Royal Society of Chemistry (which has promised funding). Two large water companies have named representatives to the organizing committee. Dr. Hamelin stressed that the organizers plan to have an excellent Future Actions Committee available after the conference. He noted that this is especially important since more than 300 meetings on water during the year. The added value of one more is much greater if the meeting is properly prepared and develops a workable set of Future Actions. The situation, he said, is urgent: 1.3 billion people don't have access to pure water. Dr. Hamelin noted that fundraising has just begun.

The meeting will be held on June 21-23, 2004 at the Maison de la Chimie in Paris., which is donating the use of their facilities. Maison de la Chimie also is advancing funds, and expects to be reimbursed. The organizers are seeking exposition support.

Committee members added the following comments:

- Sponsors could be asked to supply travel funds for certain participants. This would take the travel off-budget. (Norling)
- The quality of a water supply is as important as the quantity of water. (Van Loon).

Dr. Norling indicated that the committee was looking forward to receiving the first circular and prospectus for the conference.

CHEMRAWN XIII: Cleaner Energy:

Dr. Norling announced that Dr. Sivaram could not be present because of a family emergency. He said Dr. Sivaram is committed to the goals of CHEMRAWN and feels sure that he'll have a clean energy conference in India soon. He is thinking in terms of a small, pre-CHEMRAWN workshop in Pune.

Dr Kuznetsov noted that at the last meeting of the CHEMRAWN committee it was suggested to have this conference within the framework of an Indian petroleum conference, but that was ultimately considered to be too large an event. A plan was advanced to organize a smaller conference of 100-150 people independently in India at Pune during November-December 2003. However, time is very short and this conference now seems to be unlikely. He suggested the committee should consider a pre-CHEMRAWN conference on cleaner energy, combining new science programs, recycling, and better management. Dr. Kuznetsov agreed to try to contact Dr. Sivaram when he goes to India in December. He proposed also to talk to potential partners in some other countries, e.g, China, where there is a good infrastructure to organize the conference.

Dr. Norling added that Dr. Fu-Song Wong has promised to name a CHEMRAWN committee replacement from China for himself. He added that by 2050 half of China's energy will be generated by wind power. Dr. Kuznetsov added that half of Japan's energy is nuclear.

Dr. Hamelin urged support for a conference on Chemistry for Cleaner Energy that includes fossil energy. Nuclear energy, he suggested, is a far different topic. Stanley Langer added that it is not beneficial to delay meetings inordinately. Dr. Norling summarized that it would be best to wait to hear from Dr. Sivaram after his family emergency has ended. In the meantime Dr. Kuznetsov should continue to explore alternatives.

Dr. Hayes passed along to the committee the best wishes of Dr. John Meurig Thomas, former Chair of CHEMRAWN.

CHEMRAWN (unnumbered)--- Greenhouse Gas Mitigation Strategies

Dr Buncel reminded the committee that an initial proposal was made at the CHEMRAWN meeting in Paris. Much progress has been made since then. He introduced Dr. Richard Van Loon, a new member of the CHEMRAWN committee.

Dr. Van Loon distributed his written summary. He noted that the proposal for a conference to take place in 2006, has an energy plan and also a mitigation strategy. He noted two areas of concentration, (1) Biology and sequestration of greenhouse gases, and (2) Geochemistry e.g., using CO₂ to enhance methane release from coalmines. The conference would try to bring the two communities of expertise together. The location of the conference would be Kingston, Ontario with Ottawa as an alternate venue. Meetings would be held at the University. The conference services unit there is willing to put on conference, which would attract some 250-300 people. Funding possibilities are being explored; Biocap Canada, a logical group to team up with, is very interested and has agreed to provide \$10k in seed money.

Dr. Norling suggested the organizers contact DuPont of Canada. Dr. Buncel responded that they've written to the Director of Research.

Dr Buncel noted that it was pointed out at the last meeting that this would be a continuation of CHEMRAWN VII and XIV. He contacted Rudy Pariser, about Future Actions Committee support, but Dr. Pariser is not very involved at this time. Dr. Malin agreed to carry forward any requests for CHEMRAWN VII and CHEMRAWN XIV Future Actions funds.

Other comments:

- Water is not mentioned. Perhaps the greenhouse effect of atmospheric water should be included as a topic in CHEMRAWN XV. (Hamelin)
- Water may be a major greenhouse gas, but its presence is unavoidable. This conference will deal with mitigation efforts. (Van Loon)

- Incorporating both science and policy into the conference is a challenge. The organizers wish to invite a group of policy-oriented people. (Van Loon)
- The Pew Center for Climate Change might be very interested in this effort. (Norling)
- A Future Actions Committee schedule should be added to the conference prospectus. (Moyna).
- The three-year time frame is excellent and this is a good starting proposal. This procedure should be recommended to all CHEMRAWN organizers. (Kuznetsov).

Dr. Norling thanked Drs. Van Loon and Buncel for their proposal and said the committee looks forward to future developments.

CHEMRAWN XVI: Chemistry for Innovation

Dr. Kopytowski reported on CHEMRAWN XVI, which was held on Saturday, August 9, 2003 drawing on the knowledge and personal resources of the committee. He noted that non-committee participation was limited. He briefly summarized the following conclusions reached by the conference: (1) Innovative processes contribute to gross national products. (2) Government policies are deficient in encouraging innovation. (3) Better systems of monitoring and encouraging innovation need to be elaborated, particularly in small-scale industry. (4) Few countries can afford to put 2-3% of GDP into R&D as the larger countries can. There is a need to establish some interface between large countries with strong R&D programs and smaller ones.

Committee members made the following comments:

- Dr. Hamelin stated his observation that there is hostility against “progress” in intellectual circles and increasingly among the public. This cannot be ignored in discussing innovation in chemistry. It is a major reason for the poor image of chemistry among the public and among students. He presented a brief historical perspective, summarized as follows: The concept of “progress” was ignored until the 17th century, but in the 18th century “progress” became a central idea for both the first modern scientists (Lavoisier and others) and the community of philosophers (e.g., Turgot, Condorcet and Voltaire). (The fact that “progress” for scientists and engineers was a quantitative concept, while for the philosophers it connoted the hope of personal happiness led to C.P. Snow’s idea of “two cultures”.) However, the optimistic view of “progress” is no longer generally accepted. The dominant attitude, since Hiroshima and Chernobyl, is critical of innovation. He noted the Precautionary Principle and suspicion in some countries of genetically modified organisms. Chemists, he said, must change their R&D approach.
- Dr. Norling noted that in Chapter 6 of Machiavelli's “The Prince”, it is suggested that the innovator has as enemies all those who profited under the old conditions. He added the Precautionary principle: “Never do anything for the first time.” and suggested that committee members read the book “Pasteur’s Quadrant” by Donald E. Stokes.

It was agreed that Dr. Kopytowski will summarize CHEMRAWN XVI talks, send to the authors, get authorizations and publish the conclusions and recommendations in an appropriate venue. He will distribute his summary paper to national organizations.

CHEMRAWN Strategic Planning

The CHEMRAWN committee revisited the following two points of its strategic plan:

1) How has the external environment changed? *War and terrorism are inhibiting international exchanges more than previously.*

2) What are new weaknesses of the CHEMRAWN system? *Conferences are delayed and the Future Actions Committee often does little. In every case there should be a Future Actions committee summary. The practice in traditional CHEMRAWNS is for the FAC to meet daily during the conference.*

The committee reviewed 2002-2003 plans and possibilities for future activities, reaching the following conclusions:

- Dr. Norling will compile and review FAC reports on hand from earlier conferences.
- CHEMRAWN meetings at IUPAC Congresses might be used to produce monographs on special subjects.
- Several hundred conferences take place each year on nanodevices and nanomaterials. The effect of particle size on physical properties touches on issues that have been considered by colloid chemists. There may be a world need for a conference on applications of chemistry of dispersed materials (Kuznetsov).
- At this time the committee has many good ideas for more conferences.
- Dr. Ulubelen volunteered to prepare a short abstract of the innovation conference to give to a Turkish publication. She noted that there would soon be a meeting in Karachi, on extraction of crude raw materials from plants.

Conclusion. Dr. Norling extended his fond regards to all present, noting that he has very much enjoyed being a member and Chair of the committee.

Dr. Kopytowski expressed the committee's appreciation for Dr. Norling's excellent service as Chair. He noted that Parry Norling has encouraged the committee to concentrate on new strategies, in addition to organizing conferences.

Before adjournment, Dr. Malin outlined three issues upon which he would like to concentrate as incoming Chair of the committee.

- 1) Develop sources of support for CHEMRAWN activities.

- 2) Involve other IUPAC bodies in CHEMRAWN Projects.
- 3) Increase diversity of CHEMRAWN committee membership.

Dr. Hamelin has invited the committee to meet in Paris, during June 19-20, 2004 just before the CHEMRAWN XV congress, which is planned for June 21-23. Dr. Malin will canvass the committee members to determine their availability. .

Respectfully submitted,

John M. Malin
Secretary, 2003