
SPOTLIGHTS ON SCIENCE

CHEMRAWN Chemical Research Applied to World Needs

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The International Union for Pure and Applied Chemistry (IUPAC) has been active for over 75 years and is well known throughout the world for its work in setting internationally recognised and much needed standards for all manner of matters of concern to chemists everywhere. Examples are in the fields of atomic weights, gas coratants, and nomenclature.

In addition, IUPAC has been the means whereby chemists have come together to work on various problems and also organise symposia, seminars, congresses, and assemblies - both on topics of general interest, as well as in specialist fields. It has an exemplary record of attempting to ensure that any *bona fide* scientist who wishes to attend such events is able to do so.

The senior chemical community has recognised throughout the life of IUPAC the need for international cooperation and many of the past presidents of IUPAC have been holders of the Nobel prize as well as distinguished and senior members of industry.

In the 1970's there was a growing appreciation of the need not only to address the purely scientific aspects of chemical topics on an international scale but to demonstrate that chemistry could - and should be - applied to the solution of many of the

problems which face mankind all over the world. Ideas were discussed and re-formulated, debated and finally expressed as the 'CHEMRAWN' Concept.

This concept is not laid down in concrete terms, but may perhaps be expressed in the following way: when a problem of human need is identified or expressed, and is felt by members of the CHEMRAWN Committee of IUPAC to be amenable to help by the CHEMRAWN "process", then discussions are held with other groups in society in order to determine how they see its importance.

If the importance of the problem is confirmed, a sub-committee of the main CHEMRAWN Committee is appointed to frame a proposal for a CHEMRAWN Conference on the subject and, if agreed, the proposal is submitted to the IUPAC Bureau/ Executive for approval.

"So what? ~~-another conference?" is often the initial response of those who are not aware of the CHEMRAWN Concept. However CHEMRAWN Conferences are very different from the more usual scientific conferences.

First, the aim is to ensure that the conference is truly international, including as many attendees from the developing world as possible.

Secondly, every effort is made to secure the attendance of businessmen, members of governments, civil servants, NGOs, UN Agencies, environmental groups, etc and to ensure similar representation among those who speak at the conference.

Thirdly, a characteristic feature of CHEMRAWN Conferences is the summary of recommendations made by the conference, and most importantly, the Future Actions Programme.

The Future Actions Programme is most important and is intended to

prolong and extend the benefits of holding the conference and seeks to achieve at least some of the aims identified during the conference. The whole enterprise was given an excellent start by the founding Chairman of the Committee, Dr Bryant Rossiter, who dedicated an enormous amount of time and energy in persuading (some would use a stronger word!) all manner of people to support the first few CHEMRAWN Conferences to be held. Bryant Rossiter was Chairman of the Committee for over 10 years and was followed by Sir John Meurig Thomas, who also guided CHEMRAWN with excellent skill and his own brand of persuasiveness before other commitments forced him to stand down. Thus, I inherited an ongoing, successful project which had an excellent reputation and was strongly supported by IUPAC.

It may be helpful to display some of the differing, characteristic features of some of the more recent conferences.

If we start with CHEMRAWN VII, a highly effective and totally committed 'liaison' man, Dr. Rudy Pariser, a long-time member of the CHEMRAWN Committee, was instrumental in putting together a highly efficient set of committees *viz*- Organizing, Programme, and Future Actions. These Committees worked long and hard to ensure the success of the venture. These Committees were instrumental in obtaining over \$500,000 from all manner of sources, and also the help and sponsorship of the American Chemical Society (in association with IUPAC). Immediately before the conference, a group of 26 scientists from developing countries were able to spend a week in the laboratories of the EPA, funded by the Conference, to see at first hand methodology for the accurate, reliable measurements of various environmental parameters. The Conference was planned and seen by others as part of a response by

chemical science to the World Environmental Summit held in Rio in 1991.

A detailed set of recommendations and conclusions was agreed, together with a suggested Future Actions Programme which, among other features, recommends cooperation between academics, industrialists and governments. These Recommendations and Future Actions were delivered to every member of the US Congress and also to every Scientific Attache in all the embassies in Washington DC. The Conference itself was attended by some 400 delegates representing 48 countries. The set of Recommendations were also presented to Agenda 21' (ICSU) for UNCED.

One of the projects recommended, a highly innovative method of measuring the chemical components of the atmosphere rapidly using kites, has already completed its first set of experiments and the results will be published shortly.

The outstanding success of CHEMRAWN VII, was undoubtedly due to a combination of the selection of a problem seen to be relevant—one where the application of chemical science could be helpful and then, most importantly, a group of people who not only worked tremendously hard but also managed to raise the required sponsorship funds.

In the case of CHEMRAWN VIII, we see another success but a very different set of circumstances. Again we were fortunate in having a highly motivated colleague, this time Valentin Koptyug⁺ (a past President of IUPAC), who again assembled a band of devoted workers who ensured that the Conference took place at a time of great difficulty for our Russian colleagues.

This event attracted approximately 100 attendees and many interesting papers were presented. The main "Future Actions" result was the founding of a new publication, *The*

Journal of Chemistry and Sustainable Development.

The most recent CHEMRAWN Conference IX was held in Seoul, Korea, in September 1996. One of the members of the Chemrawn Committee, Dr. Min Che Chon, was the driving force, together with Professor Fedor Kuznetsov, also a committee member.

A dedicated group was assembled in Korea by Dr. Chon who managed to secure sponsorship from at least two different government departments, as well as financial support from various sectors of Korean industry. This Conference, which was planned as a logical progression from CHEMRAWN VI, attracted over 200 delegates and produced several lively discussion sessions which included a good mix of contributors. The Future Actions Committee worked hard throughout the conference and the Summary of Recommendations and Future Actions is about to be published.

In looking back over the first 20 years or so of the CHEMRAWN enterprise there are inevitably several features which stand out. One, I believe, is that it is remarkable how such a diverse group of people from all over the world have worked so well together with such generous donation of their time and talents in pursuit of a goal which they all share - the CHEMRAWN Concept.

Another encouraging feature has been the willing cooperation of other Divisions, Commissions, Committees and Working Parties of IUPAC and, in particular, the ongoing cooperation with the aim of achieving complementarity between the CHEMRAWN Committee and the Committee on Chemistry and Industry (COCI).

One most important factor is, unfortunately, money or rather the lack of sufficient amounts of it to fund all the worthwhile projects which could be done. This is not the fault of IUPAC. Given the spread of all the

projects which it wishes to support for chemistry, and the size of the subscriptions which it receives, then a little has to go a long way.

This does mean that a good deal of the effort which has to be put in by those who organise CHEMRAWN Conferences concerns fund-raising. Just like trying to support many of our research projects!

What of the future? Well, one of the reasons why I am so pleased to share the CHEMRAWN enterprise with readers of *Science International* is that I believe there is much more we can achieve as a scientific community by working even more closely together. I must state at this point that, of course, the views expressed in this article are mine personally and not in any way the official policy of IUPAC.

However, I do believe that the CHEMRAWN idea is a good one and should be capable of adaptation to other disciplines. Also, I believe that our next proposed CHEMRAWN X, on the subject of 'Chemical Education' which is in the early planning stage, and which we are hoping to undertake in partnership with UNESCO, and could form a part of the initiative taken by ICSU in the field of the public understanding of science. The subject area is so broad and so diverse in its relation to human needs that we are likely to require a series of conferences rather than one "big bang" event.

So, as I approach the end of my time on the CHEMRAWN Committee (12 years) and my Chairmanship, I still feel there is so much to do. We know that there are so many problems where the intelligent and urgent application of chemistry could help so much, particularly in the developing world. If only we could convince the interested parties of what a good investment of a bigger, more active CHEMRAWN programme would be - but there - I really am dreaming now!

⁺ see page 15.