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Vice President: Prof. Nicole Moreau (France)
Past President: Prof. Bryan R. Henry (Canada)
Secretary General: Prof. David StC. Black (Australia)
Treasurer: Prof. John Corish (Ireland)

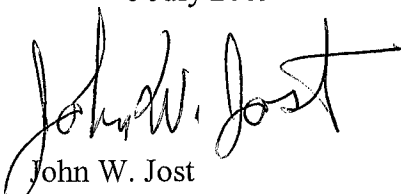
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8 July 2009

All statutory actions necessary for convening the 45th IUPAC General Assembly and Council Meetings in Glasgow during the period 31 July-6 August 2009 have been taken through the following e-mail messages:

- re. Changes in Statutes and Bylaws
25 August 2008
- re. Nominations of Candidates for Elections (Officers and Bureau)
25 August 2008
- re. Official invitations to National Adhering Organizations and Associate National Adhering organizations
19 October 2008
- re. Official invitation to Associated Organizations
19 October 2008
- re. Members of IUPAC Bodies
19 October 2008
- re. Items for Council Agenda
2 March 2009
- re. Council Agenda
3 April 2009
- re. Announcement of Candidates for Elections (Officers and Bureau)
9 June 2009
- re. Documentation available for Council Agenda Items
8 July 2009


John W. Jost
Executive Director



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*** VOTING PROCEDURES IN IUPAC COUNCIL**
(as of 7 July 2009)

There are 49 Delegations eligible to vote with a total of 156 assigned votes, not including the three provisional NAOs. They will only be eligible to vote if their applications for NAO status are approved by Council (see Item 9). The number of assigned votes may be changed on the day of the Council depending on the number of NAOs in arrears at that time. A Table of assigned votes as of 7 July 2009 follows this.

1. Scientific Matters (Bylaw 2.11)

Voting by individual Delegates present at time of voting - simple majority on show of hands (79 if all assigned votes are cast).

2. Non-scientific Matters (Bylaw 2.2)

Voting by Delegation Cards - simple majority of votes cast is mandatory for all election matters, but see 2.4 below (79, if all assigned votes are cast).

(each Delegation must cast all of its votes in the same sense)

2.1 Admission and Removal of Members (Bylaw 2.21)

2.1.1 Admission - simple majority of Delegation Card votes cast
(79, if all assigned votes are cast)

2.1.2 Removal - 75% of Delegation Card votes cast
(118, if all assigned votes are cast)

2.2 Election of Officers (Bylaw 2.222)

Secret ballot by Delegation Voting Slips - simple majority of votes cast
(79, if all assigned votes are cast)

(see second paragraph of Bylaw 2.222 for elimination procedure in case of lack of simple majority of votes)

2.3 Election of Bureau Members (Bylaw 2.222)

Secret ballot by Delegation Voting Slips - simple majority of votes cast per Bureau Member
(79, if all assigned votes are cast)

(see third paragraph of Bylaw 2.222 for elimination procedure in case of lack of simple majority of votes for necessary numbers of candidates)

2.4 Other Non-scientific Matters (Bylaw 2.23)

At the discretion of the Council, such matters may be adopted without a formal vote, for example, by a show of hands.

3. Change of Bylaw (Bylaw 6.2)

Voting by Delegation Cards – more than 50% of assigned votes (79)

4. Change of Statute (Statute 14.3)

Voting by Delegation Cards - 66.6% of assigned votes (105).

Note. Abstentions (Statute 5.32): In all Council voting procedures, abstentions shall not be recorded as votes.

**Delegation Vote Assignments, IUPAC Council
5-6 August 2009, Glasgow**

| NAO | Votes |
|--------------------|-------|
| China/Beijing | 6 |
| Germany | 6 |
| Japan | 6 |
| USA | 6 |
| Belgium | 5 |
| Brazil | 5 |
| France | 5 |
| India | 5 |
| Italy | 5 |
| Korea, Republic of | 5 |
| Puerto Rico | 5 |
| Spain | 5 |
| Switzerland | 5 |
| UK | 5 |
| Australia | 4 |
| Canada | 4 |
| China/Taipei | 4 |
| Ireland | 4 |
| Netherlands | 4 |
| Russia | 4 |
| Sweden | 4 |
| Austria | 3 |
| Denmark | 3 |
| Finland | 3 |
| Israel | 3 |
| Malaysia | 3 |
| Norway | 3 |
| Poland | 3 |
| South Africa | 3 |
| Turkey | 3 |

| NAO | Votes |
|----------------|-------|
| Belarus | 0 |
| Bulgaria | 2 |
| Chile | 2 |
| Czech Republic | 2 |
| Egypt | 2 |
| Greece | 2 |
| Hungary | 0 |
| New Zealand | 2 |
| Pakistan | 2 |
| Portugal | 2 |
| Slovakia | 2 |
| Slovenia | 2 |
| Thailand | 2 |
| Ukraine | 2 |
| Bangladesh | 1 |
| Croatia | 1 |
| Cuba | 1 |
| Ethiopia | 1 |
| Jamaica | 1 |
| Jordan | 1 |
| Kuwait | 1 |
| Serbia | 1 |
| Sri Lanka | 1 |
| Uruguay | 1 |

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at 45th IUPAC Council Meeting
5-6 August, 2009, Glasgow, United Kingdom
(as of 8 July 2009)**

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5-6 August, 2009, Glasgow, United Kingdom
(as of 8 July 2009)**

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5-6 August, 2009, Glasgow, United Kingdom
(as of 8 July 2009)**

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5-6 August, 2009, Glasgow, United Kingdom
(as of 8 July 2009)**

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**Official Delegations of National Adhering Organizations
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(as of 8 July 2009)**

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5-6 August, 2009, Glasgow, United Kingdom
(as of 8 July 2009)**

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5-6 August, 2009, Glasgow, United Kingdom
(as of 7 July 2009)**

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(as of 7 July 2009)**

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Young Observers
at 45th IUPAC Council Meeting
5-6 August, 2009, Glasgow, United Kingdom
(as of 13 July 2009)

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at 45th IUPAC Council Meeting
5-6 August, 2009, Glasgow, United Kingdom
(as of 13 July 2009)

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Deceased IUPAC Colleagues

(As of 6 July 2009)

| | |
|-----------|---|
| Australia | <p>Prof. Ronald D. Brown – Commission on Molecular Structure and Spectroscopy 1983-1985; IUPAC Representative on Committee on Space Research, 1994-2008. (4 November 2008)</p> <p>Prof. Kevin J. R. Rosman – Member, Subcommittee for Isotopic Abundance Measurements 2000-2009; Task Group Member: Isotopic Compositions of Selected Elements; Task Group Member, Determination of Atomic Weights using New Analytical Techniques, Task Group Member Review of Isotopic Compositions and Issue of a Table of Revision Values; Task Group Member: Element by Element Review of Atomic Weights to the Year 2000. (22 March 2009)</p> <p>Prof. Alan M. Sargeson – Commission on Nomenclature of Inorganic Chemistry, Associate Member 1985-1987, Titular Member 1987-1997, Commission Chair 1996-1997; Associate Member, Inorganic Chemistry Division 1996-1997; Task Group Chair: Transfermium Element Nomenclature. (29 December 2008)</p> <p>Prof. Walter C. Taylor – Task Group Member: Workshop for finalizing the project proposal document for setting up of International Center for Natural Product Research. (1 January 2009)</p> |
| Austria | <p>Prof. Irene Schnöll-Bitai: Member, Subcommittee on Modeling of Polymerization Kinetics and Processes 2004-2009; Task Group Member: Data Treatment in Size Exclusion Chromatography of Polymers. (4 December 2008)</p> |
| Canada | <p>Prof. Robert I. Haines – Member, Subcommittee on Solid Solubilities-2000-2001. (September 2007)</p> |
| France | <p>Prof. Etienne Roth – Member, Subcommittee on Natural Isotopic Fractionation 2000-2001; M202 Subcommittee on Isotopic Abundance Measurement, 2002-2008; Task Group Member - Determination of Atomic Weights using New Analytical Techniques; Task Group Member - Assessment of Fundamental Understanding of Isotopic Abundances and Atomic Weights of the Chemical Elements; Task Group Member – Evaluated Published Isotope Ratio Data; Task Group Member – Development of an Isotopic Periodic Table for the Educational Community; Task Group Member - Isotopic Composition of Selected Elements. (19 March 2009)</p> |
| Italy | <p>Dr. Giovanna Costa – National Representative, Division of Polymer Chemistry 2002-2005; Member, Subcommittee on Developing Polymer Materials 2006-2007; Member, Subcommittee on Polymer Education 2006-2007. (December 2007)</p> |
| Japan | <p>Prof. Kazuo T. Suzuki – Associate Member, Subcommittee on Toxicology 1998-2001. (24 July 2008)</p> |

Deceased IUPAC Colleagues

(As of 6 July 2009)

| | |
|----------------|---|
| Netherlands | <p>Prof. Sjaak Slanina – Associate Member, Division of Chemistry and the Environment 1996-1997; Commission on Atmospheric Chemistry: Associate Member 1986-1997, National Representative 1997-2001; Member, Subcommittee on Diffusive Sampling, 2000-2001; Member, Subcommittee on Chemistry of Environmental Compartments 2006-2009, Task Group Member: Atmospheric Deposition and its Impact on Ecosystems, with Reference to the Mid-East Region, Task Group Chair: Local Radiation Balance – The Influence of Aerosol; Task Group Member, Local and Regional Contribution to air pollution in Asian Developing Countries. (23 March 2009).</p> <p>Dr. Aaldert H. Wapstra - Commission on Isotopic Abundance and Atomic Weights, Titular Member/Associate Member 1963-1979 (2 December 2006)</p> |
| United Kingdom | <p>Dr. H. B. F. Dixon – IUBMB/IUPAC Joint Commission on Biochemical Nomenclature 1998-1999; Interdivisional Committee on Terminology, Nomenclature and Standards 1998-1999; Member, Subcommittee on IUPAC International Chemical Identifier 2002-2003. (30 July 2008)</p> |
| United States | <p>Prof. Ernest L. Eliel – Task Group Member: Frontiers of Chemical Sciences: Research and Education in Middle Eastern Countries (18 September 2008).</p> <p>Prof. Dana E. Knox – Subcommittee on Solubility and Equilibrium Data: Member 2002-2007, Chair, 2008; Associate Member, Analytical Chemistry Division - 2008 (25 September 2008).</p> <p>Dr. W. Val Metanowski – Interdivisional Committee on Terminology, Nomenclature and Symbols: Titular Member 1996-2005; Chair 1996-2001; Titular Member, Pure and Applied Chemistry Advisory Board, 1998-2001; Commission on Macromolecular Nomenclature: Associate Member 1988-1991, Titular Member 1992-1999; Member, Division VIII Advisory Subcommittee 2002-2009; Member, Subcommittee on Polymer Terminology 2002-2009 (12 December 2008).</p> <p>Prof. A. Ian Scott – Titular Member, Organic and Biomolecular Chemistry Division 1998-2001; Member, Subcommittee on Biomolecular Chemistry, 2000-2009. (18 April 2009)</p> <p>Dr. Harry J. Svec Associate Member, Commission on Isotopic Abundance and Atomic Weights 1967-1971. (November 2006)</p> |
| Switzerland | <p>Dr. Fritz Weber – Interdivisional Committee on Terminology, Nomenclature, and Symbols (1996-1998)</p> |

(Deceased date in parentheses, if known)

45th IUPAC COUNCIL MEETING
Glasgow, Scotland 5-6 August 2009
AGENDA

1. Introductory Remarks and Finalization of Agenda
2. Approval of Minutes of 44th Council Meeting and Matters Arising
3. Ratification of Decisions Taken by Bureau and Executive Committee since 44th General Assembly
4. Announcement of Nominations for Union Officers and Bureau Members
5. Announcement of Time of Elections
6. Statutory Report of President on State of the Union
7. Vice President's Critical Assessment
8. Report of Secretary General
9. Applications for National Adhering Organization Status
 - 9.1. Institute of Chemistry Ceylon
 - 9.2. National Research Fund Luxembourg
 - 9.3. Institut Kimia Malaysian
 - 9.4. Academy of Science of Moldova
 - 9.5. Saudi Chemical Society
 - 9.6. Chemical Society of Thailand
 - 9.7. Société Chimique de Tunisie
10. Plans for International Year of Chemistry in 2011
11. Report of Committee on Revision of Statutes and Bylaws
12. Adoption of Recommendations on Nomenclature and Symbols
13. Reports of Division Presidents (Written reports will be received and 10 minutes allowed for questions and discussion on each)
14. Reports of Standing Committee Chairs (Written reports will be received and 10 minutes allowed for questions and discussion on each)
 - 14.1. Committee on Printed and Electronic Publications
 - 14.2. CHEMRAWN Committee
 - 14.3. Committee on Chemistry and Industry

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- 14.4. Committee on Chemistry Education
- 14.5. Interdivisional Committee on Terminology, Nomenclature and Symbols
- 14.6. Project Committee
- 14.7. Evaluation Committee
15. Financial Reports
 - 15.1. Biennial Report of Treasurer
 - 15.2. Report of Finance Committee
 - 15.3. Accounts for 2007-2008
 - 15.4. Appointment of Auditors for 2009 and 2010
16. Budget Proposal
 - 16.1. Proposed Budget for 2010-11
 - 16.2. National Subscriptions for 2010-11
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18. Applications for Associated Organization Status
 - 18.1. International Chemistry Olympiad
 - 18.2. Federation of African Societies of Chemistry
19. Termination of African Association for Pure and Applied Chemistry as an Associated Organization
20. Proposals Formally Received from National Adhering Organizations
21. Organizational Changes in Existing IUPAC Bodies, Proposals for New and Reconstituted Bodies/Terms of Reference
 - 21.1. New Division Rules
22. Election of Union Officers and Bureau Members and Approval of Elected Officers of Divisions
23. Plans for 46th General Assembly and 43rd Congress (San Juan, 2011)
24. Approval of Dates and Sites of 47th General Assembly and 44th Congress (2013)
25. Approval of Dates and Sites of 48th General Assembly and 45th Congress (2015)
26. Reauthorization of Commissions.
27. Approval of English as the Official Language of IUPAC

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AGENDA

28. Important Matters Referred to Council by Bureau at 45th General Assembly not Covered by Items on Council Agenda
29. Reports from Round Table Discussions
30. Any Other Business (discussion only)
31. Closing Remarks, Adjournment

Guidelines for Discussion and Debate in Council

Most discussion in the Council meeting is informal, with decisions often made by voice vote or show of voting cards without an official count. However, for nonscientific matters that may require extended debate and a formal vote by delegations [Bylaw 2.2], the procedures for carrying out formal business have sometimes not been entirely clear. The Statutes and Bylaws do not prescribe detailed procedures for conduct of meetings, but they do assign to the President the responsibility for ruling on matters that are not clear or decisive. Under that authority, the President proposes to use the following guidelines for formal consideration of nonscientific matters in Council. The terminology and concepts in these guidelines are based on "Robert's Rules of Order, Newly Revised," a comprehensive and widely used authority on parliamentary procedure.

1. Business is formally brought before Council by a *motion*. A motion may be made by a delegation and seconded by another delegation, or made by an Officer or other individual presenting a report or recommendation from the Bureau or IUPAC committee. This latter type of motion does not require a second because the matter has already been formally considered and approved by the IUPAC body.
2. When a motion has been accepted by the President, it becomes the *pending business* and is considered the *main motion*. No other independent motion may be accepted until action on the pending main motion has been completed. However, *subsidiary motions*, such as amendments to the pending motion, may be considered. Also, under certain circumstances, the pending business may be interrupted to consider another, usually urgent, matter.
3. The motion should be clearly stated so that the intent is unambiguous. The wording of the motion may be modified by agreement with the maker of the motion before it is formally accepted by the President as pending business. After it becomes pending business, the wording may be modified by unanimous consent or through the amendment process.
4. In the course of debate on the motion, one or more *amendments* may be offered as motions that formally change the wording or even the intent of the pending motion. A motion to amend must be germane [relevant] to the main motion and must be stated clearly so that its effect on the main motion is clear. Usually the amendment will propose to make specific modifications in the language of the main motion or to substitute new language. The President will rule on the admissibility of an amendment in terms of clarity and relevance.
5. A proposed amendment requires a second. Once accepted by the President, the motion to amend becomes the pending business and must be debated and resolved before proceeding to consideration of the main motion. A *secondary amendment* may be offered to a pending *primary amendment*, but the secondary amendment may not be further amended because the parliamentary situation would become too confusing. [Normally, in such circumstances, it is preferable to quickly reject the amendments and main motion with the understanding that an alternative motion will be offered to handle the issue.]
6. The President will make efforts to ensure that all interested delegations have an opportunity to speak on a question and will attempt to avoid repetition or to recognize a given delegation several times. However, he may give the maker of a motion the

Guidelines for Discussion and Debate in Council

- opportunity to respond as often as necessary to questions or to explain points that are not clear.
7. When the President believes that debate has brought out the salient points, he will ask whether Council is ready to vote on the pending matter. Alternatively, any delegation may make a motion for the *previous question* [or “the question”]. This motion is *not* debatable but requires a 2/3 affirmative vote for approval. If approved, debate is terminated, and Council proceeds to vote on the pending motion or amendments in sequence.
 8. Once a matter has been decided formally, it may normally not be brought up again for discussion and action. However, when subsequent actions or new information make it desirable to reconsider the matter, a motion [with second] may be accepted to *rescind* or *amend something previously adopted*. The motion is debatable and requires either a 2/3 affirmative vote or a majority of assigned votes for approval.
 9. During debate on a main motion, a motion is in order to *refer* the matter to a standing or *ad hoc* committee, usually with instructions to carry out a particular analysis or to report at a specific time. Such a motion takes precedence over pending amendments. It is debatable. If approved, consideration of the main motion ceases, but the matter may be automatically raised again as specified in the motion to refer.
 10. Debate on a motion may be interrupted by a *privileged motion*, such as a *point of order* that objects to the procedure or a *point of information*, raising an inquiry on a matter of fact.
 11. The President will augment these guidelines as needed.

44th IUPAC COUNCIL MEETING

11-12 August 2007, Torino, Italy

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44th IUPAC COUNCIL MEETING

11-12 August 2007, Torino, Italy

Minutes

1. Introductory Remarks and Finalization of Agenda

Prof. Henry welcomed the delegates to the 44th meeting of the IUPAC Council. He thanked Prof. Giuseppe Della Gatta and Prof. Claudio Minero for the Congress and General Assembly arrangements.

Prof. Henry asked for a moment of silence for IUPAC Colleagues deceased since Council met at Beijing.

The attendance of Prof. Alberto Núñez, President of the Cuban Chemical Society and FLAQ (Federación Latinoamericana de Asociaciones Químicas) was recognized. The Cuban Chemical Society is applying for NAO status and FLAQ is applying for Associated Organization status.

Prof Henry noted the letter in the Agenda Book describing the necessary actions for the Council. He then noted the Guidelines for Discussion and the voting procedures in the Agenda Book.

Prof. Henry introduced Prof. Francis Gudyanga, member of the ICSU Executive Board, who brought greetings from ICSU and gave a brief overview of the ICSU Strategic Plan.

2. Approval of Minutes of 43rd Council Meeting and Matters Arising

Prof. Henry asked if there are any corrections or matters arising not covered elsewhere in the Agenda. The motion below was moved and seconded and was approved unanimously by a show of hands (eligible delegates) as is appropriate for a non-scientific matter provided there is no controversy.

Motion: *Minutes of 43rd Council Meeting are approved.*

3. Ratification of Decisions Taken by Bureau and Executive Committee since 43rd General Assembly

All decisions taken by the Bureau and Executive Committee, since those approved by the Council at Beijing (Minute 3, 43rd Meeting), are contained in the following Minutes, which were distributed to National Adhering Organizations as shown:

| | |
|---------------------------|-----------------|
| 81st Bureau | 7 December 2005 |
| 82nd Bureau | 7 December 2005 |
| 83rd Bureau | 2 January 2007 |
| 133rd Executive Committee | 21 June 2006 |
| 134th Executive Committee | 5 May 2007 |

The motion below was moved and seconded and was approved unanimously by a show of hands (eligible delegates) as is appropriate for a non-scientific matter provided there is no controversy.

Motion: *Council ratifies decisions taken by Bureau and Executive Committee since the 43rd General Assembly.*

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4. Announcement of Nominations for Union Officers and Bureau Members

Prof. Black noted that biographies of the nominees are available online and in printed form at the meeting. He informed the delegates that the voting order would be President, Secretary General, Vice President, Treasurer, and Elected Bureau Members. He then reviewed the situation for each office. He reported that the Bureau had set the number of Elected Members at ten, the same as for the current biennium. The nominations received are given below.

Nominations Received

President

Prof. Jung-II Jin (Korea)

Dr. Anders Kallner (Sweden)

Prof. Nicole J. Moreau (France)

Vice President

Prof. Jung-II Jin (Korea)

Prof. Nicole J. Moreau (France)

Secretary General

Prof. David StC. Black (Australia)

Treasurer

Prof. John Corish (Ireland)

Dr. David Schutt (USA)

Elected Members of the Bureau (Four minimum)

Prof. Dusan Berek (Slovakia)

Prof. Giuseppe Della Gatta (Italy)

Prof. Vladyslav Goncharuk (Ukraine)

Prof. Minoru Isobe (Japan)

Dr. Anders Kallner (Sweden)

Prof. Venceslav Kaucic (Slovenia)

Prof. Werner Klein (Germany)

Prof. Ram S. Lamba (Puerto Rico)

Prof. Natalia Tarasova (Russia)

5. Announcement of Time of Elections

Prof. Black announced that the elections for President, Vice President, Secretary General, Treasurer and Elected Members of the Bureau would be held at 9:30 on 12 August 2007. He then announced that the proposed tellers were Dr. Meyers, Dr. Racke and Dr. Fedotov.

The motion below was moved and seconded and was approved unanimously by a show of hands (eligible delegates) as is appropriate for a non-scientific matter provided there is no controversy.

Motion: Council approves the appointment of Dr. Meyers, Dr. Racke and Dr. Fedotov as tellers.

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6. Statutory Report of the President on State of the Union

Prof. Henry gave a brief overview of his written report. The report is available on the IUPAC web site at < http://www.iupac.org/symposia/conferences/ga07/council_agenda.html>.

7. Report of the Secretary General

Prof. Black gave a brief overview of his written report. The report is available on the IUPAC web site at < http://www.iupac.org/symposia/conferences/ga07/council_agenda.html>. A delegate from Poland asked that IUPAC arrange as often as possible to have a representative speak at meetings of national chemical societies. The delegate from Jamaica asked what IUPAC is doing to popularize IUPAC in developing countries. Prof. Black responded that the support provided to selected conferences in scientifically emerging countries was intended, in part, to address this goal.

8. Report of the Committee on Streamlining IUPAC Operations

The Committee's report reviews the functions and current operations of the Union's governing bodies, Council, Bureau, and Executive Committee. The report then suggests improvements in communications and operations, especially of the various meetings of these bodies. This detailed Agenda is the result of one of the suggestions of the report. One recommendation in the report, that the Chairmen of the three operating Standing Committees (CCE, CHEMRAWN, and COCI) who are now ex officio members of the Bureau without voting rights be made voting members of the Bureau, will require a change in the Bylaws and cannot be addressed until 2009. Another action taken as a result of the report's recommendations is the change in the schedule of the meetings of the Bureau and Executive Committee. Starting in 2009, the Bureau will only meet briefly at the General Assembly after the Council meeting. In addition, the order of these meetings during the year will be changed, so that the Executive Committee will meet in the fourth quarter and the Bureau in the second quarter. This change will be made in 2007, with a meeting of the Executive Committee in November. This meeting will include both current and incoming members of the Executive Committee. The Bureau will meet in March 2008. This change means that the Executive Committee and Bureau will meet earlier in the biennium and will be able to begin their work more quickly. The meeting of the Bureau in the second quarter of 2009 will allow the Bureau to have a greater influence on the Council agenda. The Committee also recommended that the Executive Committee have a short meeting at the end of each Bureau meeting.

A delegate from the United Kingdom asked why the change in the bylaws recommended by the Committee could not be done more rapidly. Prof. Henry responded that the statutory requirement for ten months notice of proposed changes to Statutes and eight months notice of proposed changes in Bylaws before the Council meeting had made it difficult to take action before the 2009 Glasgow Council meeting.

9. Report of the Committee on Revision of Statutes and Bylaws

The Committee has made an initial survey of the Statutes and Bylaws and located out of date or no longer relevant sections. It is planned to have the proposed changes available for review by the National Adhering Organizations in late 2008. The delegate from Slovenia asked if the Committee was considering reducing the time required for notice of changes to

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the Statutes and Bylaws in view of the better communications now available than at the time the current time limits were set. There was some discussion of this issue, with the point made that for many National Adhering Organizations significant notice was still needed in order to allow consideration of proposed changes by the appropriate national committees. Prof. Black commented that based on the discussion the Committee would consider if a change could be made.

10. Adoption of Recommendations on Nomenclature and Symbols

Prof. Black noted that Recommendations shown as "to be published at a future date" have been approved by ICTNS.

The motion below was moved and seconded and was approved unanimously by a show of hands (eligible delegates) as is appropriate for a scientific matter provided there is no controversy.

Motion: *Council approves the recommendations approved by the Interdivisional Committee on Terminology, Nomenclature and Symbols and published, or scheduled to be published, in Pure and Applied Chemistry from July 2005 through October 2007.*

11. Reports of Division Presidents

Physical and Biophysical Chemistry Division. Prof. Brett noted that the Royal Society of Chemistry had published the third edition of the Green Book, Quantities, Units and Symbols in Physical Chemistry in July. This was a significant event for the Division and has been eagerly anticipated. He reported that the Division planned to produce a student edition of the book and a four-page summary of symbols and quantities.

Inorganic Chemistry Division. Prof. West noted the changes proposed by the Commission on Isotopic Abundances and Atomic Weights in the atomic weights of certain elements as well as in the isotope ratio of one element. These recommendations would be discussed in Item 24 of the Agenda. He also noted the progress that had been made in determining priority for the discovery of the element of atomic number 112. A motion to delegate to the Bureau approval of a name for this element would be discussed in Item 24 of the Agenda. Prof. West reported that the Division would be making a recommendation to the Executive Committee and Bureau regarding the appropriate organizational structure to increase IUPAC's profile in Materials Chemistry.

Organic and Biomolecular Chemistry Division. Prof. Isobe reported that the Division had published a series of books on Green Chemistry. He also noted the continued success of the Thieme- IUPAC Prize awarded during ICOS (International Conference on Organic Synthesis).

Polymer Division. Prof. Jin noted that the Division had created a new Subcommittee on Molecular Characterization. He also reported that a final agreement was being negotiated with DSM to create an IUPAC-DSM Prize to be awarded during the World Polymer Conference.

Analytical Chemistry Division. Prof. Lobinski reported that five projects had been approved at the meeting of the Division Committee during the general Assembly to update chapters in the *Orange Book*, the *Compendium of Analytical Nomenclature*. This book is available on

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the IUPAC web site and the updates will be incorporated in the online edition. He also noted that the Stability Constants Database would in the future be available on the IUPAC web site. The conversion of the database from the current PC based system to an online version would be done as part of the agreement with Fachinformationszentrum Chemie-Berlin.

Chemistry and the Environment Division. Prof. Klein, Past President of the Division represented Dr. Racke who was unable to be present. Prof. Klein reported that a new Chairman had been named for the Subcommittee on Food Chemistry as part of the Division's plan to increase activity in this area. He also noted that the Division Committee at its meeting during the General Assembly had approved a number of projects to run outreach workshops in the areas of the Division's interest. These workshops are intended to inform scientists in developing countries of the current state of the art in areas such as pesticide management.

Chemistry and Human Health Division. Prof. Erhardt noted that the newly elected Division Committee would have representatives from 21 National Adhering Organizations out of the 27 members. He reported that the Division had been forced to replace its proposed incoming President due to the sanctions applied to the Brazilian National Adhering Organization. The Book Analogue-based Drug Discovery, published by Wiley-VCH had sold out its print run of 800 copies. Prof. Erhardt reported that the first recipient of the IUPAC-Richter Prize in Medicinal Chemistry was Prof. Malcolm Stevens, who had given a lecture at the Congress.

Chemical Nomenclature and Structure Representation Division. Prof. Moss reported that a new version of InChI, InChI hash was in beta testing. This will provide a fixed length chemical identifier more useful for certain applications than the indeterminate length InChI. He noted that a Spanish translation of the *Red Book, Nomenclature of Inorganic Chemistry - IUPAC Recommendations 2005* was now available. He pointed out that IUPAC does not produce translations of the color books; this is a responsibility of the national bodies.

After the reports were finished, President Henry thanked the Division Presidents for their concise and informative reports.

12. Reports of Standing Committee Chairmen

12.1. Committee on Printed and Electronic Publications

Prof. Glasser noted the following highlights from his written report. The move of the IUPAC web site from North Carolina to Berlin, the conversion of the online *Gold Book* to an XML version, the continued addition of electronic copies of the *PAC* archive to the web site, currently at 1973, Volume 33, quality improvement in both *CI* and *PAC*. He also noted that the *Gold Book* would in future be maintained only online, with no printed editions planned, and the approval of a project to develop a framework for creating XML versions of all the color books.

The delegate from Jamaica asked what IUPAC's policy was with regard to open access. Dr. Glasser replied that *PAC* was freely available on the IUPAC web site for all issues other than the current and previous year. In addition the authors of articles published in *PAC* are free to put pdf files of their manuscripts from *PAC* on their personal web site or in an institutional repository. IUPAC Technical Reports and Recommendations are always freely available as soon as they are published.

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12.2. CHEMRAWN Committee

Dr. Malin drew the attention of the Council to two items from his report, CHEMRAWN XII - *Chemistry, Sustainable Agriculture and Human Well Being in Sub-Saharan Africa* to be held in Cape Town South Africa this December and the publication of selected presentations from CHEMRAWN XV, 21-23 June 2004, Paris, France, *Chemistry for Water: Contribution of Chemistry to Quantity and Supply - Can the fresh water supply be sustained.*

12.3. Committee on Chemistry and Industry

Dr. Cesa noted the Workshop on the IUPAC-UNESCO-UNIDO Safety Training Program organized at the Congress and the COCI Corner feature in *CI*.

12.4. Committee on Chemistry Education

Prof. Mahaffy highlighted three of the priority activities for the Committee: joint efforts with the Divisions on outreach; partnership with the Organization for the Prevention of the spread of Chemical Weapons (OPCW), UNESCO, and the Chemical Heritage Foundation in Philadelphia (CHF); and the proposed International Year of Chemistry-2011.

12.5. Project Committee

Prof. Somsen was unable to be present.

12.6. Evaluation Committee

Prof. Weir reviewed the conclusions of the Committee as presented in the written report. He emphasized that the projects evaluated showed that IUPAC was receiving value for the money spent on these projects.

12.7. Interdivisional Committee on Terminology, Nomenclature and Symbols

Prof. Lorimer was unable to be present, so Prof. Herold, the Secretary of the Committee presented the report. He noted that in addition to its regular review of IUPAC Technical Reports and Recommendations, the Committee was managing a project to add new terms to the online *Gold Book*.

A Czech delegate asked why the Committee no longer circulated documents to all members of the Committee. Prof. Herold replied that this was a misapprehension. All Recommendations were circulated to all members of ICTNS, while Technical Reports were circulated to those members who had relevant expertise. Prof. Herold noted that for some Recommendations as many as fifty outside experts were invited to comment. This was in addition to the provisional Recommendation being made available for Public comment on the IUPAC web site. Prof. Herold also commented that the publication of the revised Purple Book had had to be delayed due to the number of matters that had to be resolved.

An Australian delegate commented that of the fifteen presenters in the last two items, none had been a woman. The Officers were asked to make special efforts to increase the number of women Presidents and Standing Committee chairs. Prof. Henry replied that this was a

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priority of the Officers but it was difficult given the small number of women active on IUPAC Committees. He noted that the number of women on the Bureau had increased and, depending on the outcome of the elections on Sunday, could increase further.

After the reports were finished, President Henry thanked the Standing Committee Chairmen for their concise and informative reports.

13. Financial Reports

13.1. Biennial Report of Treasurer

Dr. Buxtorf noted that while the Union's reserves are adequate for the near to mid term, there are possible long term financial issues that could arise due to the decline in the income realized from the Union's journal, *Pure and Applied Chemistry*. He also noted a number of other developments, including the introduction of a Strategic Opportunities Fund and the success of the project system in promoting the work of IUPAC. The Treasurer also commented on the success of the concept of calculating National Subscriptions in national currencies in reducing exchange rate related payment problems for NAOs.

Prof. Henry thanked the Treasurer for his almost eight years of service and for having kept IUPAC on a stable fiscal course.

13.2. Report of Finance Committee

Dr. Buxtorf reported that the overall IUPAC portfolio performed well in 2006 with an overall return of almost 14 %. IUPAC's investments are in both Euro and USD denominated securities (equities and bonds) with a total value of USD 5 551 193 as of 31 December 2006. The conservative posture adopted by the Finance Committee has served IUPAC well in the past two years by minimizing the impact of the fall in equity prices in 2005. The IUPAC portfolio is not managed to maximize investment gains but rather to generate current income and to preserve capital.

Prof. Henry thanked Dr. Senti, who could not be present, for his service as Chairman; he is retiring at the end of 2007. He then emphasized the point made by Dr. Buxtorf that the goal of IUPAC's investment policy is to preserve the value of its assets and to provide funds for operations. The Finance Committee has succeeded in both these goals.

13.3. Accounts for 2005-2006

Dr. Buxtorf reported that the audited Financial Statements showed no areas of concern.

A motion was moved and seconded to thank the outgoing Treasurer for his excellent service. The motion passed unanimously by a show of hands.

13.4. Appointment of Auditors for 2007 and 2008

The Bureau has recommended to Council the appointment of Batchelor, Tillery & Roberts, LLP, of Raleigh, North Carolina, USA as IUPAC Auditors for 2007 and 2008.

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The motion below was moved and seconded and was approved unanimously by a show of hands (eligible delegates) as is appropriate for a non-scientific matter provided there is no controversy.

Motion: *Council approves the appointment of Batchelor, Tillery & Roberts, LLP, of Raleigh, North Carolina, USA as IUPAC Auditors for 2007 and 2008.*

14. Budget Proposal

14.1. Proposed Budget for 2008-9

Dr. Buxtorf reported that the proposed budget is USD 2 936 100 with balanced income and expense. He noted that there are small increases in most expense categories. The proposed Total National Subscription in the budget is an increase of 3 % per year from that for 2007.

Prof. Henry noted that this is a Bureau proposal and therefore does not require a floor motion. He asked if there were any comments or questions for Dr. Buxtorf. There were no comments.

Voting was by delegation cards with simple majority of votes cast being required for approval. The motion below was approved unanimously with no votes against or abstentions.

Motion: *Council approves the proposed budget for 2008-9 and the National Subscriptions implied by the proposed Budget.*

14.2. National Subscriptions for 2008-9

Dr. Buxtorf noted that the National Subscriptions for individual NAOs are calculated using a formula based on the Total National Subscription in the approved budget, and the Chemical Turnover reported for each NAO by recognized international authorities. Changes in relative Chemical Turnover and changes in exchange rates have the greatest effect on individual National Subscriptions.

Dr. Jost was asked to explain the calculation of National Subscriptions in national currencies. He informed the delegates that the calculation of National Subscriptions was done using a formula approved by Council that uses Chemical Turnover to allocate the total National Subscription in the approved budget to individual National Adhering Organizations. The result of this calculation is a set of National Subscriptions in USD. These are then converted to national currency using the average exchange rates for the first quarter of the General Assembly year, in this case, 2007. The Chemical turnover values are obtained from a compilation published by CEFIC, while the exchange rates are from publicly available sources.

15. National Adhering Organizations in Arrears

Prof. Henry noted that in addition to Argentina and Brazil, who are in arrears for 2005 and whose situation would be discussed below; two NAOs (Belarus and Chile) have not paid their 2006 National Subscriptions in full. These NAOs have been reminded that their delegates will not be able to vote at the Council at Torino if payment is not made.

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Prof. Henry reported that sanctions were approved for Argentina and Brazil by the EC at its meeting in March 2007. Argentina has requested that it be allowed to change its status from NAO to ANAO.

Prof. Henry noted that there are three separate Motions. Discussion should be limited to the Motion currently before the Council.

He asked if there was any discussion of Motion 1. There was no discussion.

Prof. Henry noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, 75 % of votes cast were required to approve the motion. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

Motion 1: *Council approves the resignation of the Asociacion Quimica Argentina as the National Adhering Organization of Argentina, with the understanding that if the AQA reapplies for NAO status the total National Subscription currently owed, ARS 29 970.99, payable in USD at the then current exchange rate, must be paid before Council will consider such application. [Requires 75 % of votes cast, by Delegation Cards]*

Prof. Henry asked if there was any discussion of Motion 2. There was no discussion.

Prof. Henry noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, 75 % of votes cast were required to approve the motion. There were five votes abstaining, no votes against; the motion was therefore approved.

Motion 2: *Council approves the application of the Asociacion Quimica Argentina for Associate National Adhering Organization status, to be effective when the annual fee of USD 250 is paid.*

Prof. Henry asked if there was any discussion of Motion 3. There was no discussion.

Prof. Henry noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, 75 % of votes cast were required to approve the motion. There were eighteen votes abstaining, no votes against; the motion was therefore approved.

Motion 3: *Council approves the sanctions imposed by the Executive Committee on the NAO of Brazil.*

16. Change of National Adhering Organization for Korea

Prof. Henry reported that the Korean Chemical Society had requested that the National Adhering Organization for Korea be changed to the Korean Federation of Science and Technology Societies.

Prof. Henry asked if there was any discussion. There was no discussion He noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

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Motion: *Council approves the request to change the National Adhering Organization of Korea from the Korean Chemical Society to the Korean Federation of Science and Technology Societies.*

17. Applications for National Adhering Organization Status

Prof. Black reported that three organizations have applied for NAO status. These are: the Sociedad Cubana de Química, the Chemical Society of Ethiopia and the Programa de Desarrollo de Ciencias Básicas (Uruguay). In addition, the Federación Latinoamericana de Asociaciones Químicas has applied for Associated Organization status.

Prof. Henry noted that there are four separate Motions. Discussion should be limited to the Motion currently before the Council.

He asked if there was any discussion of Motion 1. There was no discussion. He noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

Motion 1: *Council approves the application of the Sociedad Cubana de Química to become an IUPAC National Adhering Organization.*

Prof. Henry asked if there was any discussion of Motion 2. There was no discussion. He noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

Motion 2: *Council approves the application of the Chemical Society of Ethiopia to become an IUPAC National Adhering Organization.*

Prof. Henry asked if there was any discussion of Motion 3. There was no discussion. He noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

Motion 3: *Council approves the application of the Programa de Desarrollo de Ciencias Básicas to become an IUPAC National Adhering Organization.*

Prof. Henry asked if there was any discussion of Motion 4. There was no discussion. He noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

Motion 4: *Council approves the application of the Federación Latinoamericana de Asociaciones Químicas for Associated Organization status*

18. Proposals Formally Received from National Adhering Organizations

Prof. Henry reported that no proposals have been received from National Adhering Organizations.

19. Organizational Changes in Existing IUPAC Bodies, Proposals for New and Reconstituted Bodies/Terms of Reference

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Prof. Henry reported that there are no proposed organizational changes in existing IUPAC Bodies or proposals for new and reconstituted Bodies/Terms of Reference.

19.1. New Division Rules

Prof. Henry reported that there are no new Division Rules to be approved.

20. Election of Union Officers and Bureau Members and Approval of Elected Officers of Divisions

Prof. Black reviewed slides showing the proposed Division Officers for 2008-9. These lists are given below. He then asked if there was any discussion; there was no discussion.

Prof. Henry noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

Motion: *Council is asked to approve the appointment of the Division Officers as shown on the slides.*

Lists of Division Officers:

Physical and Biophysical Chemistry Division

President: M. Rossi (Switzerland)
Vice President: A. J. McQuillan (New Zealand)
Secretary: R. Lynden-Bell (continues, UK)

Inorganic Chemistry Division

President: K. Tatsumi (Japan)
Vice President: R. Loss (Australia)
Secretary: L. Interrante (continues, US)

Organic and Biomolecular Chemistry Division

President: P. Tundo (Italy)
Vice President: G. Koomen (Netherlands)
Secretary: M. Garson (Australia)

Polymer Division

President: J.-I. Jin (continues, Korea)
Vice President: C. Ober (continues, US)
Secretary: M. Hess (Germany)

Analytical Chemistry Division

President: A. Fajgelj (Slovenia)
Vice President: W. Lund (Norway)
Secretary: D. B. Hibbert (Australia)

Chemistry and the Environment Division

President: N. Senesi (Italy)
Vice President: None for 2008-9
Secretary: W. Peijnenburg (continues, Netherlands)

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Chemistry and Human Health Division

President: D. Templeton (Canada)
Vice President: To be named
Secretary: M. Chorghade (continues, US)

Chemical Nomenclature and Structure Representation Division

President: G. Moss (continues, UK)
Vice President: R. Hartshorn (New Zealand)
Secretary: T. Damhus (Denmark)

Prof. Black reported that there were three candidates for President for the term 2008-9. The results of the ballot were as follows:

| | |
|------------------------------|----|
| Prof. Jung-II Jin (Korea) | 74 |
| Dr. Anders Kallner (Sweden) | 28 |
| Prof. Nicole Moreau (France) | 33 |
| Abstain | 7 |

Prof. Jin therefore will be IUPAC President for 2008-9.

Prof. Black noted that with the election of Prof. Jin as President, there was now only one candidate for Vice President for the term 2008-9. The results of the ballot were as follows:

| | |
|------------------------------|-----|
| Prof. Nicole Moreau (France) | 123 |
| Against | 7 |
| Abstain | 12 |

Prof. Black reported that there was only one candidate for Secretary General for the term 2008-11. The results of the ballot were as follows:

| | |
|------------------------------------|-----|
| Prof. David StC. Black (Australia) | 133 |
| Against | 2 |
| Abstain | 7 |

Prof. Black therefore will be IUPAC Secretary General for 2008-11.

Prof. Black announced that Dr. Schutt had withdrawn his candidacy and that there was therefore now only one candidate for Treasurer. The results of the ballot were as follows:

| | |
|-----------------------------|-----|
| Prof. John Corish (Ireland) | 132 |
| Against | 2 |
| Abstain | 8 |

Prof. Corish therefore will be IUPAC Treasurer for 2008-11.

Prof. Black reviewed the composition of the Bureau, other than the members to be elected at the meeting. He reminded delegates of the importance of geographic representation on the Bureau. The Division Presidents for 2008-9 will be:

Division I: M. Rossi (Switzerland)
Division II: K. Tatsumi (Japan)
Division III: P. Tundo (Italy)
Division IV: C. Ober (USA)
Division V: A. Fajgelj (Slovenia)
Division VI: N. Senesi (Italy)

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Division VII: D. Templeton (Canada)
Division VIII: G. Moss (UK).

The continuing Elected Members of the Bureau are:

C. Bai (China/Beijing)
S. Chandrasekaran (India)
M. van Dam-Mieras (Netherlands)
S. Penczek (Poland)
E. Reichmanis (USA)
A. Smith (UK).

The results of the ballot were as follows:

| | |
|-------------------------------------|-----|
| Prof. Dusan Berek (Slovakia) | 22 |
| Prof. Giuseppe Della Gatta (Italy) | 12 |
| Prof. Vladyslav Goncharuk (Ukraine) | 16 |
| Prof. Minoru Isobe (Japan) | 68 |
| Dr. Anders Kallner (Sweden) | 99 |
| Prof. Venceslav Kaucic (Slovenia) | 63 |
| Prof. Werner Klein (Germany) | 86 |
| Prof. Ram S. Lamba (Puerto Rico) | 80 |
| Prof. Natalia Tarasova (Russia) | 102 |

Election requires a simple majority of the votes cast (72 out of 142). The following were therefore elected as Members of the Bureau for 2008-11: Dr. Kallner, Prof. Klein, Prof. Lamba, and Prof. Tarasova.

21. Plans for 45th General Assembly and 42nd Congress (Glasgow, 2009)

Dr. Alan Smith reviewed the plans for the Congress and General Assembly in Glasgow, Scotland.

22. Approval of Dates and Sites of 46th General Assembly and 43rd Congress (2011)

Prof. Black reported that proposals had been received from the Colegio de Quimicos de Puerto Rico and the Turkish Chemical Society to host the General Assembly and Congress in 2011. The Executive Director has visited each of the proposed venues and determined that the proposed facilities are suitable. Representatives of each organization made a presentation concerning their plans and the proposed facilities. Prof. R. Lamba presented the proposal from Puerto Rico. Prof. A. Aroguz and Prof. S. Gultekin presented the proposal from Turkey. After the presentations the delegates were asked to vote on the site of the 2011 General Assembly and Congress. Voting was done by written ballot with a simple majority of the votes cast required for approval. Prof. Henry informed that at its meeting earlier in the week the Bureau had approved a recommendation that Council approve the bid of the Colegio de Quimicos de Puerto Rico. This recommendation was based mainly on the desirability of holding the Congress and General Assembly in a region other than Europe, given the fact that the 2007 and 2009 Congresses and General Assemblies will have been held in Europe.

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Prof. Henry reported that the results of the ballot were as follows:

| | |
|------------------------------------|----|
| Colegio de Quimicos de Puerto Rico | 78 |
| Turkish Chemical Society | 59 |
| Abstain | 5 |

23. Reauthorization of Commissions

Prof. Henry noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

Motion: *Council is asked to reauthorize the Commission on Physicochemical Symbols, Terminology, and Units, the Commission on Isotopic Abundances and Atomic Weights, and the IUBMB-IUPAC Joint Commission on Biochemical Nomenclature (JCBN).*

24. Important Matters Referred to Council by the Bureau at 44th General Assembly not Covered by Items on Council Agenda

Prof. Henry reported that the Bureau has begun the process of obtaining approval of 2011 as an International Year of Chemistry. At a meeting with UNESCO staff in Paris on 25 May 2007 it was confirmed that they supported the proposal to designate 2011 as an International Year of Chemistry and also confirmed that 2011 was the earliest possible year, given the dates of the meetings of the biennial UNESCO General Conference (October 2007). 2011 is the centenary of the Chemistry Nobel Prize of Marie Slodowska Curie. The Task Group was told that the United Nations General Assembly has informed all UN agencies that International Years can only be named by the General Assembly. The Task Group has identified the necessary requirements for obtaining the desired designation by the United Nations General Assembly.

Prof. Henry noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

Motion: *Council endorses the plan to obtain United Nations approval of 2011 as an International Year of Chemistry.*

Prof. Henry reported that the Joint Working Party on Priority claims for the discovery of elements with atomic number greater than 111 has decided to divide its work into two parts; they will first consider the evidence regarding the element of atomic number 112 and then claims regarding elements of higher atomic number. This will enable the naming process for 112 to proceed while the claims for elements 113 et seq. are resolved.

Prof. Henry noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There was one vote abstaining, one vote against; the motion was therefore approved.

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Motion: *The Bureau requests that the Council delegate to the Bureau the authority to approve a proposed name for the element of atomic number 112, providing that there is no controversy after the Public Comment period.*

Prof. Henry reported that the Commission on Isotopic Abundances and Atomic Weights (II.1) had met in Pisa, Italy, prior to the General Assembly. Following its meeting, the Commission recommended significant changes to the standard atomic weights, Ar(E), of 5 chemical elements. The following changes are based on new determinations of isotopic abundances and reviews of previous isotopic abundances and atomic masses:

| | From | To |
|------------|------------|-------------|
| lutetium | 174.967(1) | 174.9668(1) |
| molybdenum | 95.94(2) | 95.96(2) |
| nickel | 58.6934(2) | 58.6934(4) |
| ytterbium | 173.04(3) | 173.054(5) |
| zinc | 65.409(4) | 65.38(2) |

The values are presented in a concise notation whereby the standard uncertainty is given in parenthesis next to the least significant digits to which it applies; for example, Ar(Zn) = 65.38(2) is the concise form of the expression $\text{Ar}(\text{Zn}) = 65.38 \pm 0.02$

In addition, the recommended value for the isotope amount ratio of $^{40}\text{Ar}/^{36}\text{Ar}$, which may be of importance to geochronologists, has been changed from 296.03(53) to 298.56(31).

The above changes will be published in a Press Release to be distributed after the General Assembly.

Prof. Henry noted that this is a Bureau proposal and therefore does not require a floor motion. Voting was by delegation cards, with a simple majority of votes cast required for approval. There were no votes abstaining, no votes against; the motion was therefore approved unanimously.

Motion: *The Council approves the Press Release prepared by the Commission on Isotopic Abundances and Atomic Weights after its meeting in Pisa.*

25. Reports from Round Table Discussions

Reports were given summarizing the discussions at the four Round Tables held on the Friday before the Council meeting. Copies of the reports given can be found on the IUPAC web site at < http://www.iupac.org/symposia/conferences/ga07/council_agenda.html>.

Topic A: How can we attract more students to chemistry? Do we need to modify the curriculum? Can IUPAC play a role?

Prof. van Dam-Mieras

Topic B: How can we help regions and small countries to have a more effective voice within IUPAC?

Prof. Penczek

Topic C: How can we interact more effectively with governments and other decision makers? How can we improve our interactions with industry, other unions, ICSU, UNESCO,

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etc.?

Prof. Moreau

Topic D: How can we increase the global visibility of chemistry, enhance public understanding of chemistry, and improve its public image? How can we improve the visibility and image of IUPAC?

Prof. Mahaffy

Prof. Henry initiated a brief discussion of the concept of Round Table Discussions and asked for an expression of interest in doing this at Glasgow. Council endorsed, by a show of hands, holding similar Round Table discussions at Glasgow.

26. Any Other Business (discussion only)

Prof. Henry reminded the delegates that the purpose of this item is to allow general comments regarding the business of the Council. To ensure general participation, no delegate may speak twice until all other delegates have had an opportunity to speak.

The delegate from Slovakia suggested that IUPAC arrange for free access to the journals of the major chemical societies for all IUPAC National Adhering Organizations. One of the delegates from Puerto Rico suggested that a report be prepared for Council in 2009 on progress made on the proposals received from the Round Table discussions.

27. Closing Remarks, Adjournment

Prof. Henry noted the close ballot for the selection of the site of the 2011 Congress and General Assembly. He asked the delegates to indicate by a show of hands if they wished the Turkish Chemical Society to make a bid for the 2013 Congress and General Assembly. An overwhelming number of delegates raised their hands in favor.

Prof. Henry thanked the delegates for the insightful debate and their cooperation in keeping on schedule. He asked that if anyone had any comments on the new Council procedures, they should send them to him by e-mail. Prof. Henry thanked Prof. Sydnes, Dr. Buxtorf, Prof. Black, and Dr. Jost for their help during his term as President.

Prof. Henry noted the participation in the Council meeting of a number of Young Observers and asked them to stand so that they could be recognized. He then congratulated Prof. Jin and Prof. Moreau on their election as President and Vice President.

Prof. Henry thanked the Italian organizers, wished everybody a safe journey home, and hoped to "See you in Glasgow!"

The Statutory Report of President on State of the Union

I am extremely pleased to present the Statutory Report on State of the Union and inform you of what has been happening in IUPAC since I assumed the office of the Presidency two years ago. There are a large number of items I should like to report on, but because of time limitations, I have decided to keep my report focused only on more salient issues. Besides, many of the other items will be discussed during this Council Meeting. Presently, I shall discuss

- International Year of Chemistry and related activities,
- Increases in the number of National Adhering Organizations (NAOs) and what it means,
- Deeper cooperation with the UN and other International Organizations,
- IUPAC's Project System and the state of efforts to streamline IUPAC operations and governance,
- Several other important developments,
- Finally, future Visions for the Union.

As I'm sure you are aware, last December, the 63rd UN General Assembly officially declared 2011 as the International Year of Chemistry (IYC). The idea of celebrating the IYC was initially proposed at the 2005 Beijing General Assembly (GA), and then was approved by the Council at the last Council Meeting, at Torino in 2007. Since then, our proposal was adopted by the Executive Board of The United Nations Educational, Scientific and Cultural Organization (UNESCO) and the UN GA. I would like to take this opportunity to express my special thanks to Ethiopian NAO for their profound contributions throughout the whole process. The Committee on Chemical Education (CCE) also played a very important role in the process, for which I am very appreciative.

In the past year or so, I have met many presidents and representatives of different chemical societies in the world, regardless of whether or not they are IUPAC NAOs, and attempted to explain the importance of the IYC for the whole chemistry community, and sought special cooperation for this extremely important year. IUPAC has set up an ad hoc committee, the IYC Management Committee, which will become very busy in the coordination of planning and activities related to IYC.

The IYC is expected to offer us the opportunities to

- Increase the public appreciation of chemistry in meeting world needs
- Increase the interest of young people in chemistry
- Generate enthusiasm for the creative future of chemistry
- Celebrate the 100th anniversary of Mme. Curie's Nobel Prize and the 100th anniversary of the founding of the International Association of Chemical Societies.

The success of the IYC primarily depends on activities on national and regional levels. Nevertheless, IUPAC plans to hold several cornerstone events:

1. An advance publicity at PACIFICHEM in Honolulu in December 2010
2. An official launching of the IYC with UNESCO in Paris in January 2011
3. The IUPAC Congress and GA in San Juan, Puerto Rico in August 2011
4. A closing event in Brussels in December 2011.

As you all know, we devoted ourselves to the discussion of IYC during the Round Table Discussions and the World Chemistry Leaders' Meeting (WCLM), about which you will hear more during this Council meeting.

I sincerely hope that we, working together, can make IYC a turning point in convincing the world opinion of how successfully chemistry can contribute to the resolution of global problems such as climate change, energy in all its ramifications, environmental degradation, etc. and ultimately to world sustainability. I am greatly encouraged to see the intensive enthusiasm for IYC being generated in the international chemical communities, including industry. Let's take this great opportunity to invigorate chemistry in the world and facilitate the Renaissance of Chemistry in this century.

IUPAC was established nearly 100 years ago. During this period the number of nations grew from about seventy to close to two hundreds. In contrast, the number of IUPAC NAOs in recent decades has remained around fifty. This is about to change. If the Council approves the six new applications, for the first time in its history, IUPAC will have about sixty NAOs. Admission of new NAOs will be dealt with later. I understand that a number of other chemical societies are interested in joining IUPAC, soon. I would like to see the number grow to at least 100 before IUPAC reaches its hundredth birthday in 2019. I thank past presidents for their efforts in increasing the number of NAOs. I hope that you, Council members, help induct more members and do your part to make IUPAC a larger international union. At the same time, IUPAC shall try its best to be involved more in global issues and to make all its activities more relevant to our members' concerns and desires.

In recent years, IUPAC has been expanding its cooperation with other international organizations. Prof. Bryan Henry, the past president, successfully has brought the International Council of Scientific Unions (ICSU) and the International Chemistry Olympiad, among others, much closer to us, for which I am deeply thankful to him. Our Committee on Chemistry and Industry (COCI) has been very active in establishing closer cooperation with the industrial communities. As a result, IUPAC was able to begin working very closely with the Strategic Approach to International Chemicals Management (SAICM), the European Chemical Industry Council (CEFIC), and the Society for Environmental Toxicology and Chemistry (SETAC). This is of particular importance, because the international industrial sector will be enthusiastically participating not only in the IYC but also in other IUPAC activities.

In addition, taking advantage of the UN GA's acclamation of the IYC, we could approach the office of the UN Secretary General and the Division of Sustainable Development of the UN Department of Economics and Social Affairs (DESA) to work on projects of mutual interest. We have already filed a preliminary application with the UN to acquire status as an accredited Non-Governmental Organization (NGO). Additionally, we plan to work very closely with DESA in our efforts to contribute in providing chemical solutions targeted toward the sustainable progress of the world. Through the IYC, our cooperation with UNESCO not only will continue but also will be further strengthened. The UN's recognition of IUPAC as their most reliable collaborator in the pursuit of the world sustainability is a watershed event in the history of IUPAC. The expertise of the IUPAC members will be in full service to this endeavor. Such international cooperation and contribution will definitely not only improve the public image of chemistry and the chemical industry but also will open new windows for chemists and the chemical community to regain a global appreciation of their ability and importance. I anticipate that IUPAC will continue to strengthen these instances of international cooperation in the years to come.

I am very happy to report you that the Project System successfully planted its roots deeply in IUPAC. The Evaluation Committee critically evaluated our Project System and concluded that the Project System is performing very successfully. Please study the committee's report on your own. I am thankful to the Committee for the hard work. It goes without saying that your active participation in the Project System is making it successful. I am sure you have read many excellent reports of projects in a wide variety of

fields relevant to global issues.

In the most recent Council Meeting, IUPAC past president, Prof. Bryan Henry, reported on the formation of and recommendations of an ad hoc committee for streamlining IUPAC operations. Many of the committee's recommendations have been adopted. For example, the timing of the Bureau, the GA and Council and the Executive Committee meetings have been readjusted, which you will hear more about later.

I also would like to add that the continued IUPAC-UNESCO-UNIDO safety training program and the IUPAC's active participation in the MALTA conferences clearly demonstrate the IUPAC's determination to make positive contributions to the world chemical community and also to world peace. The successful revision of several books of nomenclature and terminology has been completed and the newly revised books published. Such activities help maintain our leadership in chemical nomenclature and terminology, which, I believe, is a most important task for IUPAC.

As you will hear later, our proposed Bylaw amendments will allow us to accept new NAOs every year under certain provisions. This will help new NAO candidates in that they no longer will have to wait two years or more to become actively involved in IUPAC activities.

The reports of Division Presidents and Committee Chairmen describe their activities in the past 2 years in detail, and will demonstrate how efficiently the Presidents and Chairmen have run their divisions and committees, for which I am extremely thankful. CHEMRAWN, headed by Prof. Leiv Sydnes, the past past president of the Union, continues to hold a series of special symposia and workshops on the topics of extreme importance to the world. There are many other items worthwhile to be mentioned, but I shall let you read the reports on those items or hear the reports of the responsible colleagues during this Council Meeting.

Now, I would like to spend a couple of minutes before closing my report to describe my view on the future Vision of the Union. As I have already reported, the IYC will provide the extraordinary momentum for us to promote worldwide the importance of chemistry and chemical technology. But, at the same time, chemists should try to design constructively for the future of chemistry. It is natural for this Union should take a solid lead in this endeavor. The Union, with your cooperation and help, despite the lingering international financial crisis, financially is in a relatively healthy state. We, however, should realize that

with the present Union's financial resources, we can achieve the Union's goal only to a limited extent. In other words, in order to increase the global impact of our activities, the Union should be able to support much larger projects and should be capable of mobilizing a larger force of chemists to tackle megasize global issues that are waiting for the wisdom and expertise of international groups such as ours. This strategy requires the Union to have significantly greater financial strength. Please remember that the Union's centennial of 2019 is approaching. We have to be ready to open the gigantic new door of the Union's second century to the world. The Union should be at the center of global problem solvers. With this in my mind I would like to dedicate my remaining presidency, impending past presidency in the next two years and thereafter, to strengthening the financial capacity of the Union. For this drive, needless to say, your cooperation is indispensable.

A little later on, you will hear and discuss Prof. Nicole Moreau's Vice President's critical assessment. Many of her ideas are excellent for better operation of the Union and I am sure that implementation of her ideas will make this Union much stronger and global.

Ladies and gentlemen, we have most exiting times before us, especially for this Union. I look forward to this Council meeting, which not only will bring forward your ideas and wisdom but also generate new innovative discussions on how chemistry and chemists can creatively contribute to the worldwide appreciation and application of the chemical sciences, to the betterment of the human condition and to the protection of this planet.

Last but not least, I would like to take this opportunity to express my heartfelt thanks to the Royal Society of Chemistry for their excellent arrangements for this Council Meeting and the whole General Assembly.

I wish you all the best. God bless you.

Jung-Il Jin

Prepared for the 45th IUPAC Council Meeting

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Report of the Vice President Critical Assessment of IUPAC

Nicole J. Moreau

ABSTRACT: After a somewhat rapid analysis of some new or not yet assessed activities of IUPAC, this critical assessment will focus on the interactions of the Union with its external partners: NAOs and ANAOs, chemical societies, other bodies, scientists, policy makers, journalists, public etc. Two reasons prompted this kind of assessment, i) the success of the Round Table discussions held for the first time in 2007 before the Council meeting, and debating subjects within this domain, ii) the celebration in 2011 of the International Year of Chemistry, which could afford the opportunity to improve and enhance IUPAC's global interactions.

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1. Introduction

In recent years, the Vice President's Critical Assessment (VPCA) has moved away from the traditional analysis of the Union's scientific activities and general scientific policies to a more focused analysis of more urgent matters that need addressing. Thus, in 2001, Pieter Steyn decided to focus his VPCA on IUPAC management, challenging areas of chemistry, the new project-driven system, the Union's contribution to the advancement of research in the chemical sciences, the development of effective channels of communication in the international chemical community, and IUPAC's role in the service of chemistry in both developed and developing countries. In 2003, Leiv Sydnes discussed IUPAC's communication with its members and other publics. In 2005, Bryan Henry conducted a review, assessment, and analysis of our project system, fully operational since 2002. There was no VPCA in 2007 since the position was vacant that year.

This new focus of the VPCA is, in my opinion, an indication of the progress made by IUPAC in performing its scientific work following the adoption of the Project System, and of the competence of the divisions. Using this new type of analysis, I will examine briefly some new IUPAC activities and some that have been recently modified. Then I will discuss more thoroughly the interactions of IUPAC with its external partners, namely NAOs and ANAOs, chemical societies, other bodies, scientists, policy makers, and the public.

Why this choice? I suggest two major reasons: i) a positive one, the general good quality of work and initiatives inside IUPAC, and ii) a negative one, an urgent need to make IUPAC better known to the chemistry community and various publics, and to develop plans for stimulating and promoting chemistry internationally.

2. What to note about IUPAC's functioning?

2.1. *The Project system*

The project system became fully operational around 2002 and was the main subject of Bryan Henry's VPCA in 2005. It would be interesting to assess how the suggestions made by Henry's VPCA aroused modifications and improvements, but after four years, such an analysis would need to be updated. I will, however, note two major improvements to the project system:

- i) In 2007, the Finance Committee proposed to add unspent project funds to the **Strategic Opportunities Fund**, dedicated to the support of projects considered important for the achievement of the Union's strategic objectives. Under the proposal, the Strategic Opportunities Fund would be allowed to carry over uncommitted funds from one biennium to the next. This would mean that when a project was completed or abandoned the fact would be recorded, as is currently done for approved projects, and the Strategic Opportunities Fund would be increased.
- ii) In 2002, the **Evaluation Committee** (EvC) published a document entitled "Advice to Task Group Chairmen," which I keenly recommend everyone read. An evaluation of IUPAC projects was initiated on 1 January 2006 by Ron D. Weir, chair of the Evaluation Committee, using a protocol established in the middle of 2006 and communicated to the Bureau in Madrid in October 2006. The evaluation used the following terms of reference:
 1. To determine the appropriate criteria for retrospective evaluation of each project.

2. To evaluate all projects for conformance to plan.
3. To evaluate the impact of projects on the relevant chemical community.
4. To report to the Bureau, in writing, annually on the results of the evaluations done.
5. To inform, after discussion in the Bureau, the National Adhering Organizations of the completed evaluations.

This is a tremendous work and is very useful for the project system. The EvC chose 26 projects after extensive searching and consultation in order to establish statistics from which conclusions could be drawn. Following is an extract from the 2007 report: “*The work by the EvC has led to the following observations:*

(a) the use of citations is an accurate measure of impact for some projects, but not for some other projects;

(b) low-profile projects characterized by a lack of citations may have high value via (i) their impact on nomenclature, terminology, units, as these documents are used throughout university instruction, scientific journal standards, often translated into other languages, and some have CD ROMs issued for sale, (ii) their impact on the scientific development of young scientists;

(c) there is anecdotal information on the positive value of the conferences (projects), but quantitative data are lacking.”

The report provides four examples of projects—two high profile and two low profile—to demonstrate the efficacy of the analysis. These project descriptions could be used to make an effective advertisement about IUPAC activities.

2.2. The Streamline Committee

After the 2005 Council meeting in Beijing, it was agreed to appoint a **Streamline Committee** to oversee two Task Forces: one to revise statutes and bylaws, the outcome of which can be seen in the Minutes of the March 2008 Bureau Committee, and one to improve operational efficiency, which reviewed the functions and current operations of the Union’s governing bodies, including Council, Bureau, and Executive Committee.

❖ A very valuable improvement was the initiative of the Task Force to create the **Detailed Agenda**, implemented for the first time in August 2007 in Torino, to everybody’s satisfaction. It is surprising to see how an apparently minor change can considerably improve the efficiency of the different committee meetings.

❖ **Change to Bureau and Executive Committee meeting times.** One change is the shifting of the main meeting of the Bureau from the General Assembly to the second quarter of the year. During the General Assembly year, the main meeting of the Bureau will occur before the General Assembly. This will enable the Bureau to have more meaningful discussions of the Council Agenda, to the benefit of the Council. The Executive Committee will now meet in the third or fourth quarter of the year. This means that the Executive Committee will meet soon after the General Assembly in a General Assembly year. Thus, both the Executive Committee and the Bureau will begin work much earlier in the biennium than in the past. This change in meeting schedules will bring new officers and members of the Bureau into the work of the Union much earlier in their terms of office.

2.3. Miscellaneous

❖ A very interesting global issue addressed by IUPAC was the **Malta Conferences**, initiated in 2003. The third Malta conference took place in Istanbul in December 2007, and was the largest of the three conferences, with 90 participants, including 67 from Middle Eastern

countries. Chemistry occupies a central position in the world economy, offering the possibility to bring together scientists from a number of countries in the Middle East in order to generate trust among communities. The Malta conferences provide unique opportunities for collaboration among scientists to solve problems of the region in the fields of energy, materials science, natural products, green chemistry, education, and environment. During the Environmental Workshop for instance, Malta III attendees unanimously adopted a communiqué addressed to regional and world leaders to urge action on the degradation of water quality in Gaza.

The political value of the conference justifies continued IUPAC involvement. However, the scientific content of the conference has to be improved (although a positive point was the participation of Nobel laureates) as well as the participation, especially the inclusion of young scientists. The level of financial support per capita—mainly from the American Chemical Society—is very high. The total is about USD 350 000. In addition, these conferences are highly time consuming for IUPAC and for all who are involved. To ensure an optimal price/benefit ratio, it is important to better publicize these conferences: When a concert is organized with musicians from both Israel and the Middle East, the media largely diffuses the information. Why not try to do a better job after the Malta conferences are held, and ask the attending people to help us in this work?

- ❖ In July 2006, Bryan Henry became the first IUPAC President to participate in the **International Chemistry Olympiad (IChO)** held in South Korea. He seized the opportunity to present IUPAC to the IChO community. He even handed out *Gold Books* to the major prize winners. In 2007, IUPAC signed a Memorandum of Understanding with the Steering Committee of the IChO, to formalize IUPAC's support: IUPAC will provide USD 10 000 to the IChO to help economically disadvantaged countries participate in the Olympiad. *This is an important fact, perfectly in line with IUPAC's mission, and is a means of improving the image of the Union, since the event takes place every year.*

- ❖ There are a number of other issues that deserve mention, but my objective is not to review all the activities of IUPAC, but only to have a look at the newest ones. There are a few items related to electronic and print communication that deserve mention:
 - A new website is in a test period, and a web site specific for IYC is now operational.
 - The color books continue to be re-edited, improved, and translated. The Gold Book was published online in an interactive XML version, enabling the creation of many indexes.
 - IUPAC International Chemical Identifier (**InChI**), an open-source identifier algorithmically generated from a two-dimensional graphical structure, is becoming more widespread. This software contains full structural information and, unlike other unique identifiers, such as the CAS registry number, the structure can be regenerated from the InChI with a success rate of over 99 percent.

2.4. Round Tables

In August 2007, for the General Assembly in Torino, IUPAC launched an initiative, a series of four **Round Table Discussions**. The purpose of these was to foster discussions between Council delegates about subjects of mutual interest:

- How can we attract more students to chemistry? Do we need to modify the curriculum? Can IUPAC play a role?

- How can we help regions and small countries to have a more effective voice within IUPAC?
- How can we interact more effectively with governments and other decision makers? How can we improve our interactions with industry, other unions, ICSU, UNESCO, etc.?
- How can we increase the global visibility of chemistry, enhance public understanding of chemistry, and improve its public image? How can we improve the visibility and image of IUPAC?

These round tables, besides the fact that they were closely linked, gave rise to very successful, enthusiastic, and fruitful discussions. The 2007 Council meeting endorsed holding a similar session in Glasgow. Therefore, it would be very interesting to use the topics of these Round Tables in this VPCA, and to discuss IUPAC's role in stimulating and promoting chemistry internationally. Doing so provides an opportunity to look at external aspects rather than at internal aspects of our Union's activity.

Through this rapid review, it appears that the activity of IUPAC *per se* has been increased and improved since Bryan Henry's VPCA in 2005. However, suggestions for further discussion or initiatives will be found in one or other of the following sections of this document.

3. How Does IUPAC Interact Outside the Union?

There are two ways of considering relations of IUPAC outside the Union:

i) Those depending on the activity of active members, officers, Secretariat, presidents, and members of divisions and standing committees. These interactions are managed at a global level. They are already developed, but are probably still not enough. ii) Those depending on individual persons, active members or affiliate members, at a national level. These relations are extremely poor, because people, whether active or affiliate members appear to completely "forget" their commitment to IUPAC as soon as they return back home after the meeting of a committee or after the Council.

The approved recommendation to designate 2011 as the International Year of Chemistry will probably foster these two types of interactions. Indeed, the UN has placed IUPAC and UNESCO at the helm of the event, which means that the name IUPAC will be automatically associated with every event, whether global, national, or regional. Therefore, each of us would be guilty if we neglect to put forward what he/she knows about the Union's mission and activities.

3.1. Relations with Industry

It was in 1911 that nine chemical societies from Europe, North America, and Asia met in Paris to form the International Association of Chemical Societies in order to facilitate international relationships among scientists by adopting rules common to all countries concerning abbreviations, notations, and symbols. At the end of World War I, IACS was dissolved to become IUPAC, a new Union conceived both by academic and industrial chemists. Therefore, it seems natural to begin by examining IUPAC's relationships with industry. It is obvious that we should gain income from the Company Associates Program. We are forced to note that in the last 10 to 50 years, industry has been less involved. The reason is not to be found in financial matters, since the minimum annual subscription for a

Company Associate is as low as USD 450. Companies do not know either the amount of the subscription or what IUPAC can be used for, and they still think that IUPAC's mission is mainly a matter of nomenclature.

We must not neglect pharmaceutical and cosmetics industries, although they do not easily recognize that they are closely connected with chemistry. We must not forget small chemical process industries: In fact, smaller companies are perhaps those to which IUPAC could be the most beneficial. We must be aware of being able to offer industry a voice through exploiting our status as a respected and independent NGO, to assist industry with expanding the global reach of initiatives like "Responsible Care." If better ties with industries are weaved, they can help us improve our communication and persuade other companies that we can assist industry in bringing rational scientific viewpoints to issues that are often judged on emotional grounds without any basis in science. Would it be beneficial for IUPAC to work more closely with trade associations?

Prizes such as the Thieme-IUPAC prize awarded by Division III or the Samsung-IUPAC fund can offer industry an opportunity to achieve wider recognition and can help IUPAC increase its profile.

In any case, making the Union more widely known is not simple: Who is the person you have to talk to, to be sure that your letter, e-mail, leaflet, or brochure will not go in the bin? The IYC will be, of course, a powerful tool for convincing a chemical company that this year will provide the opportunity to explain that chemistry, instead of being the problem provider, is in fact the **solutions provider** to many of the real problems our world is facing, such as climate change, sustainable and renewable energy, pollution, and waste management. Such arguments, used by the neutral organization that IUPAC is, could have more force than when used by the industry itself.

❖ **The Committee on Chemistry and Industry (COCI)** is in charge of issues of importance to chemical industries.

Although facing difficulties in attracting chemical companies, COCI is very active, with its highly successful IUPAC-UNESCO-UNIDO Safety Training Program that provides opportunities for young practitioners from developing countries to gain hands-on experience from IUPAC Company Associates, and important regional workshops that Company Associates attend. For instance, the Workshop for East Asian National Adhering Organization representatives and Company Associates is planned for 2009. At this workshop, COCI will communicate IUPAC's strategic goals, regional accomplishments, and plans; review its structure, function, and strategy; and gather information, comments, and suggestions from the attendees on how we in COCI and IUPAC can best serve chemists from academic as well as industrial establishments in the East Asian region.

Regarding Company Associates recruitment, the new program of granting Company Associate status to companies that contribute financially to IUPAC conferences and workshops should be mentioned for two reasons. First, each of these companies contributes far more than the typical Company Associate annual subscription (thousands of dollars, usually, to conferences that are in the company's interest), so they are contributing directly to the success of IUPAC's scientific mission. Second, as a result, the number of Company Associates has expanded to around 140 in 22 countries.

❖ An excellent initiative taken by some COCI members was to become involved in SAICM: Strategic Approach to International Chemicals Management. SAICM is a policy

framework for fostering the sound management of chemicals. SAICM, developed by a multistakeholder and multisectoral Preparatory Committee, supports the achievement of the goal agreed upon at the 2002 Johannesburg World Summit on Sustainable Development. The summit agreement ensures that, by the year 2020, “chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health.” A few IUPAC members attended the last UN International Conference on Chemical Management, ICCM2, where, together with two other groups, they proposed to provide their advice in organizing and facilitating a science meeting to consider emerging issues. This proposal was not judged as adequate by some attending countries and NGOs because “*these groups are seen as heavily influenced by industry.*” This story is fully indicative of the need to make IUPAC better known.

- ❖ Although the initiative taken by COCI of granting CA status to companies that contribute to conferences and workshops has increased CA numbers substantially, it is evident that COCI cannot assume total responsibility, and that each of us inside our own country has to work with and promote the Company Associates Program. Each member can alert his or her chemical society, and industrial chemistry society if any, and provide them with the IUPAC document “*An Informal Review of IUPAC Members’ Benefits, Duties, and Functions, and Relevant Programs*” and the leaflet publicizing the Company Associates Program. Many members have scientific collaborations with individual companies, and can try to attract them to the Union’s program, and try to identify the person to whom information should be sent. It is difficult and sometimes embarrassing to seek official contacts with the people in charge of such matters in an industry, but in fact it is not impossible, and one just has to be determined to do it. However, it is perhaps easier for a chemical society to make such contacts. It is up to each of us to try to contact our local president. Perhaps IUPAC could write an official letter for this use?
- ❖ Important global issues are addressed by the Committee on Chemical Research Applied to World Needs (CHEMRAWN) through its series of conferences that have important socio-political aspects and have brought together experts in science and technology, including industrial leaders, government policymakers, academic scientists, and members of the general public. They have debated how chemistry, chemical research, and chemical resources can help meet major human needs or solve major problems, focusing on issues of global significance. Perhaps it is possible to better publicize CHEMRAWN conferences to industry, for instance by asking them which kinds of topic they would like to be discussed?

3.2. Relations with Policy Makers and Politicians

We all are very aware that IUPAC is poorly known even by the chemical community. But what is to be said about most policy makers, and about politicians? They have never ever seen our acronym! We must not be too shy and unassuming, and realize that IUPAC is not in the position of asking for something, but of proposing services, such as the capacity to explain to the public that they (the policy makers) can find some solutions thanks to their links with chemical research and industry. This may seem to be a somewhat naïve attitude, but if one constantly thinks that he/she cannot have any influence, cannot be heard by anyone, of course, nothing will ever happen.

- ❖ One of IUPAC’s goals for the IYC is to make the organization, and the valuable expertise it can offer, known to this category of people. The various international “cornerstone” activities, such as the opening and closing ceremonies will permit IUPAC to be known as

the body behind the IYC. It is probable that we will not be able to completely decide who should be invited to these events, but we shall probably have some input. It will be up to us to make the best choices.

- ❖ CHEMRAWN conferences (see above) are also a means of encouraging policy-makers and politicians to engage with IUPAC about major issues confronting society.
- ❖ IYC activities will take place at the local, regional, and national levels in many countries. Local organizers will be free to create appropriate activities of their own, but depending on the venue of an activity, universities, schools, libraries, research centers, the national chemical society, academy of science, or chemistry committee will be able to seize the opportunity to have such contacts.
Furthermore, at some point in our careers, most of us have the opportunity to make contact with people active in policy making or in politics. Here, too, we cannot miss the opportunity to promote IUPAC.
- ❖ To be more convincing, we must not defend chemistry, but simply state that, yes, problems exist, but chemistry is the science that can help find solutions. Human wealth is based on the use and consumption of natural resources, including materials, energy, and land. Increases in resource consumption and the related environmental impacts can have a multitude of negative effects, ultimately leading to ecological crises and security threats. In this context, the European Community's goal of achieving a 22 percent reduction in electricity production from nonrenewable energies by 2010 will require drastic changes in energy efficiency. Obviously, a great deal of chemical research is focused on energy, including making more fuel-efficient cars. Another aim of the global community is achieving a significant overall reduction in the volume of waste generated—again, an area in which chemistry research is essential.

3.3. *Relations with NAOs and Chemical Societies*

A few times a year, IUPAC sends letters to its NAOs. But the Union is not sure that these letters effectively reach their addressees. It is the role, more the duty, of each IUPAC member to verify that the communication actually takes place. It may be that in many cases, the letter is addressed to someone not fully concerned with IUPAC, having the title rather than the function of the corresponding member of the NAO.

Relationships with NAOs are not always untroubled: NAOs sometimes feel IUPAC is a rival, a body which tries to surpass them, to give them ideas, advice. IUPAC must clearly state that it is an equal partner with these NAOs and is not in competition with them. We should attract prominent chemists with innovative ideas to use them for the benefit of the Union.

IUPAC must determine how to provide NAOs benefits they cannot obtain by themselves. For this purpose, it is our NGO character that may be most useful: the fact that the Union is an independent, objective body. In this respect, we are more independent than the federations of chemical societies, from Europe, Asia, Africa, and Latin America.

But each of us has to examine his/her behavior: Am I fully active and efficient in my national chemical society or do people feel that I am more interested in dealing with IUPAC's

activities? For instance, if I belong to the IUPAC Polymer Division, do I deal with polymers within my national society? Conversely, within IUPAC, am I really active, or do I let myself be rocked by the quiet drone of my division which seems to work quite well like that? We could for instance engage the divisions of our national chemical societies to contact their equivalent in IUPAC; stressing that if one obtains IUPAC sponsorship for a conference, this can help to seed money from national funding organizations.

3.4. *Relations with Research and National Education Organizations*

Maintaining effective relationships with research and national education organizations is the role of each NAO and members from each country. Of course, the IYC provides an excellent opportunity for such relationships, but we must not wait for two years before being active. There are many other ways in which we can help IUPAC be known on this level.

Congresses, of course, are one way: We can use the tools provided by IUPAC, such as the speaker pack and various cards, forms, brochures, and the periodic table of elements is an excellent hook. The same materials can be distributed at the science festivals held each year in most countries.

We must improve our biennial congress, since it is generally poorly attended by young people, and more generally by chemists. This not so much a matter of organization, but a matter of publicity. How can we encourage young chemists to attend? Of course, lower fees can be attractive as well as cheap lodging close to the congress center, but why not organize sessions such as a CV-check, contacts and cooperation with industry, lectures about mobility, and international careers. Why not invite young chemists from the organizing country to organize their own sessions within our congress?

Why not be in touch with the communication department of our university, with the head teacher of secondary or technical schools, and indicate that IUPAC and its website can offer them useful chemical information? In most cases, the national chemical societies have regional divisions, or young people's clubs. They can be in charge of such activities—provided the chemical society and its members are aware of IUPAC (see above).

To be honest, this is not that easy: Stakeholders in these national entities may be guarded and may feel our goodwill is an intrusion into their domain, much more than this can occur in the industrial world.

3.5. *Relations with Other Organizations*

We have traditionally developed relationships with other organizations such as ICSU and UNESCO. These relationships must be maintained and encouraged if we are to continue to achieve meaningful goals in a global environment. It is thanks to these relationships that issues of global concern such as chemical weapons, the contamination of drinking water, and others have been successfully managed. Concerning UNESCO, the fact that we are both at the helm of organizing the International Year of Chemistry will improve our collaborations. For instance, I was invited in June to the fifth meeting of the Scientific Board of the International Basic Sciences Programme (IBSP). This was an opportunity to meet and discuss with the

representatives of other Unions or Organizations from many countries. As many politicians are concerned by UNESCO, enhanced links with it is a good means to ensure better contacts with politicians. Concerning ICSU, the presence of the immediate past president Bryan Henry on the Executive Committee the last three years has helped us to be more plugged in to ICSU activities and has made ICSU more aware of IUPAC. Having been re-elected by the General Assembly in Maputo in 2008, Bryan Henry will continue in this role for another three years.

Perhaps we need to look more broadly at developing partnerships with other organizations. More exactly, we should properly involve organizations with whom we already have established collaborations. For instance, the International Bureau of Weights and Measures and the Consultative Committee on Amount of Substance—Metrology in Chemistry both expressed interest in collaborating with us on IYC 2011 activities. It is up to IUPAC to take the next formal step by involving them and other stakeholders in the event.

Some organizations are well aware of IUPAC, such as the World Health Organization, which insists on IUPAC names for all new drugs and provides a PIN (Preferred IUPAC name) for compounds (they have to assign the INN, International Nonproprietary Name, which must be defined chemically). We should further develop our relationships with organizations such as the International Atomic Energy Agency, the United Nations International Development Organization, the World Trade Organisation, and others. The earlier discussion of CHEMRAWN initiatives is a step in this direction.

3.6. Publicity

IUPAC should advertise in scientific as well as in nonscientific newspapers and on radio and television. The main problem is that IUPAC would have to pay a significant amount of money for this. How can we obtain seed money?

IUPAC could do a better job of publicizing its activities. Why, for instance does a concert featuring musicians from several Middle Eastern countries, including Israel and Palestine, have such an impact, while nobody speaks about our Malta conferences?

4. Observations

When it is referred to:

- NAOs means the organization in charge of relationships with IUPAC; it may be national chemical societies, national committee of chemistry, national academy of science
- IUPAC refers to officers, members of the Bureau and executive committee, presidents of standing committees and divisions, and also to the staff.
- Active members are members of the divisions or standing committees responsible for a project.
- Members are anyone adherent to IUPAC.

When looking for improvement of communication with the community outside IUPAC, we can satisfy two objectives:

- Work for the benefit of chemistry, by improving its image for civil society.
- Work for the benefit of IUPAC, to acquaint a wider circle of people, and especially young people, with our work. It can allow us to collect funds.

- IUPAC must not lose its image as the organization in charge of providing truly authoritative names, norms, and methods. IUPAC has to enlarge this role to food norms for instance, where things are very heterogeneous.

5. The International Year of Chemistry

Clearly, the IYC is one of the main points of this assessment and it is an item that will be largely discussed at our General Assembly. The celebration of the IYC will provide IUPAC with a helpful tool for fulfilling the following recommendations. However, I should stress that we all must keep the Union in mind when enthusiastically organizing the year in our own countries.

6. Recommendations and Suggestions

It is necessary to draw up a list of priorities among all the needs I see for improving the role of IUPAC in society. This role is a double one:

- One role is the classical core of activities, which includes, of course, nomenclature, standardization, data assessment, and the scientific work of the divisions, which should continue.
- A second role is to provide education and expert, unbiased advice about major chemical issues of importance to society at large. I wonder whether, in a way, this might become the main role of IUPAC during and after the IYC celebration. But to realize such an objective, the first and most important goals facilitated by IYC, could be:
 - Make IUPAC's exact nature known
 - Increase the opportunities to meet other organisations
 - Strengthen and make better the contacts with NAOs
 - Favour contacts with educational and research bodies
 - Not hesitate to have contacts with policy makers and politicians
 - Pursue and enhance contacts with industries, including pharmaceutical ones, work with trade associations
 - While maintaining traditional areas such as nomenclature and scientific activities, increase recognition of our other activities and issues of global concern

Each time we have the opportunity to meet other people or organizations, we must explain the nature of IUPAC, because whatever the IUPAC's activity which is concerned, as long as the exact nature of the Union is not known and recognized by our partners, this activity will not be fully successful. We must stress that IUPAC is a respected, independent and global NGO, free of any political, industrial, national influences, In this way, we can bring rational and scientific viewpoints to issues that are often judged on emotional grounds without any basis in science.

Report of the Secretary General

According to the Statutes, the Secretary General "shall carry out the business of the Union as specified by the Council, by the Bureau, by the Executive Committee, or by the President, and be responsible for keeping its records and for the administration of the Secretariat". The focus of my report is therefore all those aspects of IUPAC that particularly involve the Secretariat staff, and this will give an overview of current and developing policy areas.

The Secretariat

The current staffing component is six positions. The management of the Secretariat continues in the very secure hands of the Executive Director, John Jost, who also carries a wide range of specialist administrative and financial tasks, and manages the work of other staff members. He acts as Secretary for the Finance Committee, the Executive Committee, the Bureau, the Council, the Division Presidents, the Evaluation Committee, and the World Chemistry Leadership Meeting. He also arranges schedules and oversees local arrangements for the GA and Congress, and administers the Manuscript Central site and oversees production of *Pure and Applied Chemistry*.

The Associate Director, Fabienne Meyers, is responsible for all electronic publishing, and is guiding the implementation of website improvements. Fabienne is involved in many aspects of IUPAC work, the most visible of which is that of editor of the excellent *Chemistry International* magazine. She is also responsible for administration of the Project System, IUPAC's major work area, and the Young Chemist and Young Observer awards programs, as well as being proactive in many other ways. Fabienne continues to work from an office generously provided by the Boston University Department of Chemistry, whose support is again gratefully acknowledged.

Paul LeClair, the Database Specialist, maintains a database of contact information for members, fellows, NAOs, etc, as well as a database of conference and journal information. Through this he provides electronic mailing labels for the distribution of *Chemistry International* and *Pure and Applied Chemistry*. He also manages the election and selection process for Division and Standing Committees, and handles conference sponsorship and financial support applications, and poster prizes.

Enid Weatherwax, Administrative Assistant, handles all correspondence related to Claim Forms, and IUPAC prizes, and all fulfillment related to *Pure and Applied Chemistry*, *Chemistry International*, or books, and the preparation and shipping of packages and mailings. She also handles arrangements for meetings as necessary, for the Bureau, the Executive Committee, or other committees.

Linda Tapp, Accounting Assistant, enters transactions into a bookkeeping program, and processes claim form payments, bills, and invoices. She generates reports for Division Presidents and Standing Committee Chairs, and maintains the subscriber databases. She

handles administrative tasks in support of the Affiliate Member Program, and provides liaison and support for the Committee on Chemistry and Industry, and support to that committee for matters relating to Company Associates.

Following the resignation of Erin Carter in May 2007, the staffing situation was monitored for almost a year, and given the increase in website activities, it was decided to hire someone with web development skills. Bryan Pearson was appointed as Chemistry Informatics Specialist and commenced work on 23 September 2008. Bryan is a graduate in Business Administration and Computer Information Management Systems from Longwood University, Virginia. He is a very welcome and effective addition to the Secretariat team.

In addition to the full time staff, IUPAC uses the services of four regular contract employees:

Ms. Leslie Davis, an accountant, does the official bookkeeping

Mr. Chris Brouwer is a copy editor for *Chemistry International*

Ms. Cheryl Wurzbacher is a copy editor for *Pure and Applied Chemistry*

Ms. Cheryl Bush is a layout editor for *Pure and Applied Chemistry*

IUPAC also uses the services of Dr. Bohumir Valter to handle many aspects of *PAC* online, including preparing and posting the issues, preparing the material for CrossRef, and compiling tables of contents and indices from the manuscript files. Dr. Valter also coordinates the work of Dr. Kosata (*PAC*) and Dr. Nic (iupac.org). Daktela - Asterisk Business Reseni administers the IUPAC web server, now located at FIZ Chemie in Berlin.

Despite an increasing array of tasks, the Secretariat continues to function well within its budget.

Dr. Jost has announced his intention to retire after August 2010. It is planned to have a replacement selected and hired by early 2010 to allow sufficient time for overlap. An advertisement for the position was placed in *Chemical & Engineering News*, *Chemistry World*, *Science*, the *Chronicle of Higher Education*, *Chemistry International*, and the *Proceedings of the National Academy of Science*. Following the closing date of 31 May 2009, the Selection Committee will review the candidates, and hold interviews in June.

Web site developments

The major event regarding the web site continues to be the conversion of the existing site to one based on XML technology. After more than twelve months of operating the new site in “test” mode, there continue to be significant issues. The portions of the site related to the members database and to membership on IUPAC bodies have been converted to accept data generated by the Act databases at the Secretariat. This portion of the new site is largely successful. The portions of the site related to projects and other information continues to need a significant amount of work both by the developers in Prague and Secretariat staff. Communication with the developers has improved somewhat over the past year, but is still a significant barrier to completion of the project. The Committee on

Printed and Electronic Publications set up a study group at the 2008 CPEP Meeting in Prague. The Group considered how best to develop the IUPAC Website so as to meet the wishes and needs of both members of IUPAC and of others. The Study Group concluded that a long-term goal for the development of the web site should be the creation of two aspects of the site, one oriented to members and the other oriented to the general public, mainly students and chemists not active in IUPAC.

The Project System and Strategic Opportunities Fund

IUPAC's major output is generated by the Project System, through which the Union's unique global perspective can be put to work: modest amounts of money can be used to great effect through the efforts of many volunteers. The Project System is very successful, and numerous worthwhile outcomes are generated. Most projects are initiated through budget allocations to the Divisions and Standing Committees, and the Project Committee. The Strategic Opportunities Fund, which was allocated USD120,000 for 2008-2009 is used by the Executive Committee to support projects judged to be of strategic importance to the Union. In practice, the Project Committee initially reviews all major projects applying for funding from the Project Fund, and can recommend projects to the Secretary General for consideration by the Executive Committee for funding from the Strategic Opportunities Fund. Close liaison between the Chair of the Project Committee and the Secretary General makes this process quite efficient. The recent decision to recover unspent funds from projects well past their completion dates, and add them to the Strategic Opportunities Fund has resulted in further significant additions to the Fund.

Validation of New Elements

The Joint Working Party established in 2005 to consider claims for the validity of elements $Z > 111$ decided to divide its work into two parts. They first considered the evidence regarding the element $Z = 112$ and will then review claims regarding elements of higher atomic number. This will enable the naming process for element $Z = 112$ to proceed while the claims for elements $Z > 112$ are resolved. The report on the element $Z = 112$ has been written and circulated to the laboratories concerned. Their comments have been taken into account, and the report has been extensively reviewed. It has also been reviewed by ICTNS and approved for publication in *Pure and Applied Chemistry* as a Technical Report, following the endorsement of the Executive Committee of IUPAC and the Executive Council of IUPAP. After approval of the report for publication, the Inorganic Chemistry Division will request the group named as the discoverer of element $Z = 112$ to suggest a name and symbol for the element. A Recommendation will be made available for public comment, including an announcement on the IUPAC web site, and will then be brought to the Bureau or Council, whichever meets at the appropriate time, for approval. The Recommendation will then be published in *Pure and Applied Chemistry*. Council has already agreed to delegate to the Bureau the approval of a name for element $Z = 112$ if there is no controversy regarding the assignment of priority of discovery, or regarding the proposed name after the public comment period.

Guidelines for the establishment of future joint working parties have now been agreed by both IUPAC and IUPAP. Under these guidelines, each Union would put forward five nominees, so as to achieve a ten member panel of "Standing Nominees" from whom a joint working party of five would be chosen, such that each Union would be represented by at least two members. The list of nominees is currently being compiled. Note, however, that the current joint working party is proceeding to deal with the validity of elements $Z > 112$.

Pure and Applied Chemistry

Pure and Applied Chemistry continues to be a significant source of income for IUPAC despite the continued decrease of institutional subscribers. The journal web site has had a number of significant improvements over the past year. Two highly visible items are the availability of the complete journal archive online and the compilation of a complete index to IUPAC sponsored conference series. Online access via IP address verification has been implemented and made available to subscribers. The implementation of immediate online publication, ASAP, for *Pure and Applied Chemistry* is being phased in. This entails a significant work flow change for all of those involved in preparation of the journal for publication. The impact factor of *Pure and Applied Chemistry* continues to rise. There is still a special niche for publications arising from plenary, keynote and oral presentations at IUPAC conferences, and organizers of sponsored conferences should find *Pure and Applied Chemistry* a highly desirable vehicle for publication. Increasingly, the younger rising stars see this as an excellent opportunity to present their research to a wider audience.

Sponsorship of Conferences

This remains one of IUPAC's most important roles and results in much of its current visibility. It should be noted again that IUPAC sponsorship is not financial, but simply an accreditation of quality. However, this is a serious factor in attracting participants and results in significant revenue accruing to the host country. Thus the decision to allow sponsored conferences to be held only in NAO countries provides a very tangible incentive to full membership commitment.

Since the previous General Assembly in Torino in August 2007, almost 50 conferences have received IUPAC sponsorship.

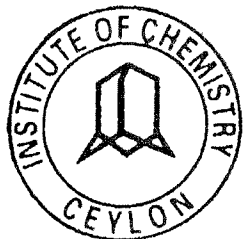
Financial Support of Conferences

Applications for conference financial support must come via the relevant Division, which must present its case to the Project Committee, which considers applications twice a year. Quite small amounts of money (~ USD 4000) are granted to add value to a conference already adequately financed. The aim of the scheme is to encourage Divisions to be proactive in supporting emerging scientific regions, or exploring new developments in chemistry. Applications in the former category are not restricted to NAO countries, and

award of financial support in such cases also automatically confers IUPAC sponsorship. In this biennium, the number of applications has been small, and Divisions are encouraged to take the initiative and look for new opportunities.

International Year of Chemistry 2011

Some mention must be made in this report of the International Year of Chemistry which will occur in 2011. This is a major commitment on the part of IUPAC, and will be the subject of a separate report to Council.



INSTITUTE OF CHEMISTRY CEYLON

A Government approved Charity
(Founded 1971; Incorporated by Act of Parliament No.15 of 1972
Successor to the Chemical Society of Ceylon, Founded 1941)

341/22, Kotte Road, Welikada
Rajagiriya
Telephone: 4615230, 2861653
Fax: 2861231
E-mail: ichemc@sltnet.lk

September 7, 2007

Prof. Bryan R. Henry
President
International Union of Pure and Applied Chemistry
P.O. Box 13757
Research Triangle Park, NC 27709-3757
U.S.A.

Dear Sir:

Application for National Adhering Organization Status

Please find enclosed an application from the Institute of Chemistry, Ceylon, for the status of National Adhering Organization of IUPAC, for Sri Lanka. Supporting documents are likewise enclosed.

The Institute of Chemistry, Ceylon, established in 1971 and incorporated in 1972 by an Act of Parliament in Sri Lanka (then Ceylon), is the professional association representing Sri Lankan chemists. It has been an Associate National Adhering Organization of IUPAC for many years.

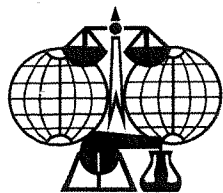
We shall be most grateful if you would forward our application to the Council for approval at your earliest convenience, and inform us as to the exact amount due as National subscription and any other applicable fees.

With many thanks,

Yours sincerely,

Dr. Nandanie Ediriweera
President.

Dr. Ranil D. Guneratne
Secretary for International Affairs.



International Union of Pure and Applied Chemistry

Secretariat: P.O. Box 13757, Research Triangle Park, NC 27709-3757, USA
 TEL: 1-919-485-8700 FAX: 1-919-485-8706 EMAIL: secretariat@iupac.org

Application for IUPAC Adhering Organization Status

The formal Members of IUPAC are the National Adhering Organizations, and this document sets out the information required for application. The Council is the governing body of IUPAC, and meets every other year (odd numbered years) at the IUPAC General Assembly. Council must review all applications and is responsible for approving admission. An application may be submitted at any time; however, an application received no later than 01 February of the year in which a Council meeting is to be held (usually in August) will enable a decision to be made at that Council meeting.

Guidelines/Information for becoming an IUPAC National Adhering Organization:

- (i) According to the IUPAC Statutes, a country may join the Union through only one national organization representing its chemists. This National Adhering Organization may be a national chemical council, a national society representing chemistry, a national academy of science, or any other institution or association of institutions representative of national chemical interests.
- (ii) For countries in which there is not a single body that represents all chemists, a National Chemistry Committee for IUPAC may be formed to act as the NAO. This committee should represent all members of the various chemical societies.
- (iii) The word country may include a specific geographic territory that is widely recognized as having the cultural and administrative characteristics usually associated with an independent state but without necessarily having complete independence or sovereignty.
- (iv) NAOs pay National Subscriptions annually to IUPAC. The amount of the National Subscription is based on the chemical turnover for that country, with a minimum National Subscription of USD 1 000. The chemical turnover is the value of chemical products produced in a country as reported by UNIDO and/or CEFIC.
- (v) The National Adhering Organizations are the Members of the Union.

IUPAC also offers the possibility of Associate National Adhering Organization (ANAO) status. The Associate National Adhering Organizations have "observer" status only and are not voting members of IUPAC. There is a time limit of four years for ANAO status. Over that four-year period, it is anticipated that ANAOs will progressively engage in IUPAC activities and become, at the end, full members with NAO status. It is not however required that an organization first become an ANAO, and it may become an NAO directly.

Organizations applying for ANAO status may also submit an application at any time. The application will be reviewed by the Executive Committee, which is responsible for approving admission.

Guidelines/Information for becoming an IUPAC Associate National Adhering Organization:

Guidelines (i), (ii), and (iii) above apply also to the composition of ANAOs.

- (iv) ANAOs pay annual dues to IUPAC of USD 250.
- (v) The Associate National Adhering Organizations are not Members of the Union but have Observer status.

Please visit this link: <http://www.iupac.org/general/hints.html> for further information regarding the benefits and duties of National Adhering Organizations and Associate National Adhering Organizations. For example, IUPAC-sponsored conferences generally can only be held in countries with NAO status.

Application for IUPAC Adhering Organizations

When submitting this application, the following items should be included:

- (i) A letter from the organization addressed to the President of IUPAC formally applying for Associate National Adhering Organization status or National Adhering Organization Status in IUPAC.
- (ii) A copy of the Statutes & Bylaws of the organization, if they are available in English, or a summary in English if the originals are available only in another language.
- (iii) A brief description of the goals of the organization and its significant activities.

Please return an electronic copy of the completed application and enclosures to the IUPAC Secretariat by e-mail to secretariat@iupac.org. Printed materials should be submitted to the above address.

| | |
|---|---|
| <i>For administrative use only</i> | <i>Submitted</i> _____ |
| 1 Check One | <input checked="" type="checkbox"/> Applying for National Adhering Organization Status <input type="checkbox"/> Applying for Associate National Adhering Organization Status |
| 2 Organization Name | Institute of Chemistry Ceylon |
| 3 Country/Region that the Organization Represents | Sri Lanka |
| 4 Address | 341/22 Kotte Road, Welikada, Rajagiriya, SRI LANKA |
| 5 Organization Contact to IUPAC <i>Will be published if application is approved</i> | Dr. Ranil D. Guneratne 341/22 Kotte Road, Welikada, Rajagiriya, SRI LANKA ranildg@yahoo.com |
| 6 Name of the person submitting this form <i>if not the Responsible Person</i> | Dr. Ranil D. Guneratne 341/22 Kotte Road, Welikada, Rajagiriya, SRI LANKA ranildg@yahoo.com |
| 7 Approximately how many members does the organization serve? | 1100 |
| 8 Please list any publications that the organization produces. | Chemistry in Sri Lanka |

Application for IUPAC Adhering Organizations

| | |
|---|---|
| <p>9 How does the organization plan to relay the benefits of IUPAC membership to its membership?</p> | <p>Although large numbers of Sri Lankan born chemists work overseas, those remaining in Sri Lanka (other than a few university academics) have limited interaction with their peers in other countries, limited access to information regarding the latest developments, and limited ability to participate in international events. Membership of IUPAC will give members of the Institute of Chemistry more opportunities to participate in events such as IUPAC sponsored conferences, workshops, and symposia. Interested Sri Lankan chemists will also be encouraged to participate in IUPAC operational committees; this will enable them to not only contribute internationally, but also interact with their peers and thereby enhance themselves professionally.</p> |
|---|---|

Goals and Activities of the Institute of Chemistry, Ceylon

The Institute of Chemistry, Ceylon, was established in 1971, as the successor to the Chemical Society of Ceylon, and incorporated by an Act of Parliament (the Institute of Chemistry Ceylon Act No.15 of 1972). The general objectives of the Institute are specified in that Act and summarized below:

- To promote and advance the science of chemistry and its applications in Sri Lanka.
- To advise the government, public corporations, and other institutions on matters concerned with the application of chemistry to national development.
- To promote the acquisition, dissemination and interchange of chemical knowledge.
- To promote education and research in chemistry.
- To provide courses of study and conduct examinations for the award of diplomas, certificates, and distinctions, as well as qualifying examinations or other forms of assessment for admission of candidates to various grades of membership.
- To liaise with other scientific and professional bodies.
- To ensure high standards in the professional activities and conduct of members.

In order to achieve these objectives, the Institute carries out a number of activities on a regular basis. The most important of these, and the Institute's principal source of income, are educational activities. The educational wing of the Institute, known as the College of Chemical Sciences, conducts a degree level professional training program for chemists, and a diploma level program for laboratory technicians. These activities are housed in a modern building equipped with lecture rooms, laboratories (including modern instrumentation), a library, and a computer room. In addition, the Institute also conducts training seminars and workshops on a regular basis to enhance the skills and knowledge of chemistry professionals working for the government and industry.

The most important activity for members of the Institute is the Annual Sessions, conducted every June. This is our annual conference and general meeting, for presentation of papers, election of new office-bearers, and social exchange. In 2007, this was combined with a hugely successful international conference, Chemtech 2007, which attracted a large number of participants from overseas.

Other activities include quiz competitions and lecture demonstrations to stimulate interest in chemistry in schools, public lectures and orations, annual awards for achievement, and social activities. The Institute also liaises with other professional and scientific organizations, including the Royal Society of Chemistry (Sri Lanka section), the Federation of Asian Chemical Societies (FACS), the Sri Lanka Association for the Advancement of Science (SLAAS), the Organization of Professional Associations (OPA), Sri Lanka, and, of course, IUPAC. There are currently plans to expand the Institute's headquarters building to accommodate additional facilities, and proposals to make our laboratory facilities available to industry for contract R&D and testing services are under consideration.

Institute of Chemistry, Ceylon

Successor to the Chemical Society of Ceylon, founded 1941
Act of Parliament No.15 of 1972

**ACT OF INCORPORATION
BY - LAWS
&
MEMBERSHIP REGULATIONS**
(including all amendments up to June 2003)

July 2004

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Institute of Chemistry, Ceylon Act. No.15 of 1972 An Act to Incorporate the Institute of Chemistry, Ceylon (Date of Assent: April 28, 1972)

WHEREAS an Institute called and known as "The Institute of Chemistry, Ceylon", was established in the year One Thousand Nine Hundred and Seventy one (as successor to the "Chemical Society of Ceylon" which was founded in the year One Thousand Nine Hundred and Forty-one) for the general advancement of the science and practice of chemistry in all its branches and for the purpose of effectively carrying out its objects according to the rules agreed to by its members:

Preamble

And whereas the said Institute has applied to be incorporated, in order to enable it more effectively to carry out and fulfil the several purposes for which it was established, and it is for the public advantage to grant the application:

BE it, therefore, enacted by the Queen's Most Excellent Majesty by and with the advice and consent of the House of Representatives of Ceylon in this present Parliament assembled, and by the authority of the same, as follows:-

1. This Act may be cited as the Institute of Chemistry, Ceylon Act. No.15 of 1972. Short title
2. From and after the passing of this Act, such and so many persons as now are or may hereafter be enrolled as corporate members of the said Institute (so long as they continue to be corporate members), shall by virtue of these presents be members of and form a body corporate by the name of the "Institute of Chemistry, Ceylon", by which name they shall have perpetual succession and Incorporation of the Institute

a common seal and with full power and authority to use, alter, vary, break and renew such seal from time to time at their discretion, and by the same name shall and may sue and be sued in all courts and in all manner of actions and suits and shall have the power to do all other matters and things incidental or appertaining to a body corporate.

3. The general objectives for which the Corporation is constituted are hereby declared to be -

General objectives of the Corporation

- (a) to promote and advance the science of chemistry and its applications in Sri Lanka;
- (b) to advise the Government, and give counsel to public corporations, local bodies and other institutions on all matters connected with the application of chemistry to the progress and development of the country;
- (c) to promote the acquisition, dissemination and interchange of chemical knowledge by -
 - (i) providing a forum for the presentation of original communications and discussions thereon;
 - (ii) establishing and maintaining libraries;
 - (iii) publishing matters of interest to the profession of Chemistry; and
 - (iv) any other means;
- (d) to promote education in chemistry at all levels;
- (e) to promote, encourage and foster original research in Chemistry
- (f) to assess the eligibility of candidates for admission to the various grades of membership;
- (g) to conduct or provide for the conduct of the qualifying examinations for all grades of membership of the Institute and to promote, provide, or approve, courses of study for such examinations;
- (h) to conduct or provide for the conduct of examinations for the award of diplomas, certificates, and other distinctions, in such branches of chemistry as the Institute may from time to time deem necessary and to prescribe, approve or provide courses of study for such examinations;

- (i) to ensure the maintenance of high standards in the professional activities and the general conduct of its members;
- (j) to establish liasion with other scientific and professional organizations;
- (k) to establish and enhance the status of the profession of chemistry in Ceylon;
- (l) to take any other measures that may be necessary for the attainment of all or any of the objectives of the Institute.

4. The affairs of the Institute shall, in accordance with by-laws in force for the time being, be administered by a Council

Council of the Institute

5. (1) It shall be lawful for the Institute from time to time at a general meeting of the Institute and by the requisite majority of the members voting, to make by-laws for the Management of the affairs of the Institute and the accomplishment of its objects.

Power to make by laws

(2) The by-laws set out in the schedule to this Act shall be deemed to have been made under subsection (1) and shall, subject to the provisions of subsection (3), be for all purposes the by-laws of the Institute.

(3) The by-laws may be altered, added, to amended or rescinded at a general meeting of the Institute by the requisite majority of the members voting thereat.

6. (1) The Institute shall be able and capable in law to acquire by purchase, gift devise, bequest, exchange or in any other manner and hold any movable or immovable property and to dispose of any such property acquired or held by the Institute.

Power to acquire property and raise money

(2) The Institute shall have the power to borrow or raise money necessary for the furtherance of its objects and to create, execute, grant or issue any mortgages, bonds or obligations to receive such money.

(3) All property, movable and immovable, acquired or held by the Institute and all moneys paid to or received by the Institute under this Act or the by-laws, shall be held used and applied by the Institute in accordance with the by-laws for the furtherance of its objects and subject to such by-laws, the Institute shall have the power from time to time to buy, sell, grant convey devise, assign, exchange or otherwise dispose of or mortgage any such property and invest its funds in such manner as may be necessary or expedient for the furtherance of its objects.

7. The Institute shall be able and capable in law to change

(a) such fees, as the Institute may deem reasonable, for admission to any course or examination conducted by the Institute;

(b) fees for the election of persons to any class of membership of the Institute; and

(c) such subscriptions and fees, as the Institute may deem reasonable in respect of the services by the Institute.

Power to
charge fees
and sub-
scriptions

8. All debts and liabilities of the Institute, existing at the date of coming into operation of this Act shall be paid or discharged by the Corporation, and all debts due and subscriptions, contributions and fees payable to the said Institute shall be paid to the Corporation.

Debts due
from and
payable to
the Institute

9. The Institute shall have the power to appoint an Admissions and Ethical Practices Committee and to take such other steps as may be found necessary from time to time for the maintenance of professional standards and discipline among persons practicing or acting as chemists in Ceylon.

Admissions
and ethical
practices
committee

10. Nothing in this Act contained shall prejudice or affect the rights of Her Majesty the Queen, Her Heirs and Successors, or of any body corporate or of any other persons except such as are mentioned in this Act and those claiming by, from or under them.

Saving of
the rights of
the crown
and others

By-Laws of the Institute of Chemistry, Ceylon

(As amended up to the 32nd Annual General Meeting held on 18th June 2003)

1. Membership

1.1 The membership of the Institute shall consist of Corporate members and non Corporate members; the Fellows and Members of the Institute shall be referred to as Corporate members and the Honorary Fellows, Associates, Licentiates, Affiliates, and Institutional Members shall be referred to as non Corporate members.

1.2 The names of all Corporate and non Corporate members shall be entered in a membership register kept for the purpose (hereafter referred to as the register) and shall be maintained by the Hony. Treasurer of the Institute.

1.3(a) Members of the Institute in the following grades (but no others) shall be entitled to use designatory letters after names as mentioned below.

| | | |
|------------------|---|---------------------|
| Fellows | - | F.I.Chem.C. |
| Honorary Fellows | - | F.I.Chem.C. (Hony.) |
| Members | - | M.I. Chem. C. |
| Associates | - | A.I.Chem.C |
| Licentiates | - | L.I. Chem. C. |

1.3(b) The award of the designation Chartered Chemist shall be in accordance with by-law 7 and any regulations made by the Council. Fellows and Members awarded this designation (but no others) may in accordance with regulations made by the Council, use the designatory letters C.Chem. and be referred to as Chartered Chemists.

1.4.1 Associates shall have the right to attend Annual General and Special General Meetings as observers but shall not have the right to requisition or to join in requisitioning any Special General Meeting of the Institute or to vote at any Annual General or Special General Meeting; they shall be entitled to serve on special committees or be invited to any meeting as decided by the Council.

1.4.2 Licentiates and Affiliates shall not have the right to attend or vote at Annual General or Special General Meetings or to requisition or join in any requisitioning any Special General Meeting of the Institute but shall be entitled to serve on Special Committees as decided by the Council.

2. Every candidate seeking admission, as a **Fellow** shall

EITHER

- 2.1 (a) be more than 35 years of age; and
(b) be a Member or has fulfilled the conditions necessary for the Grade of Membership.

and

- (c) in the opinion of the Council is a mature, senior person who has acquired and practised key skills through professional activity.

and

- (d) who has, in the opinion of the Council, made an outstanding contribution in one or more of the following ways:-
- (i) to the promotion, advancement or application of the Chemical Sciences.
 - (ii) to the profession of Chemistry
 - (iii) to the management or direction of organisations in which the Chemical Sciences are important.

OR

- 2.2 have had such knowledge of Chemistry and has acquired such eminence in his profession, as in the opinion of the Council.

3. Every candidate seeking admission to the grade of **Member** shall be a professional who in the opinion of the Council.

- 3.1 (a) has attained a graduate level of education or training based on the Chemical Sciences as may be prescribed or approved by regulation for this purpose, and
(b) has acquired and practised key skills through professional activity.

4. Honorary Fellows

The Council may admit distinguished and eminent professionals (not necessarily Chemists) as Honorary Fellows.

5. Every candidate seeking admission to the grade of **Associate** or **Licentiate** shall in the opinion of the Council have attained a graduate level of education or training based on the Chemical Sciences, as may be prescribed or approved by regulations for this purpose.

6. Every candidate for admission to the grade of **Affiliate** shall indicate genuine interest in the Chemical Sciences though not yet qualified for any other category.

7. Chartered Chemist

A Member or Fellow or an experienced practising Chemist seeking the award of the designation of **Chartered Chemist** shall need to demonstrate a high level of competence and professionalism in the practice of Chemistry and show his commitment to maintain that expertise. He will need to have at least five years of professional experience subsequent to a good enhanced first degree or can demonstrate an equivalent level of attainment. Such a person should provide evidence of possessing one or more of the following at a level of acceptance to the Council: -

- 7.1 has specialist Chemical skills relevant to his practice
- 7.2 has in – depth knowledge of the specialist areas of Chemistry
- 7.3 has responsibilities based upon Chemistry and has made a significant personal contribution.
- 7.4 demonstrates Professionalism in the workplace
- 7.5 has maintained Chemical expertise through continuing professional development.

7A. Graduate Chemist

Any student of the Institute or its College of Chemical Sciences (established under By-Law 15) who has successfully completed all parts of the Graduateship Examination conducted by the Institute or its College of Chemical Sciences and thereby qualified for Associateship of the Institute shall be entitled to the designation of **Graduate Chemist** and to use the designatory letters **Grad. Chem.** after their names.

8. Institutional Members

- 8.1 Any company, association, body or institution desirous of supporting the work of the Institute can become an Institutional Members subject to approval by the Council.
- 8.2 Institutional Members shall subscribe to the Institute on admission and annually thereafter, such sums as the Council may determine from time to time.

8.3 The Council may at any time at its discretion declare that any firm, company or other association or body or institution, which had been admitted as an Institutional Member shall no longer be an Institutional Member and thereupon, such firm, company or other association, or body, or institution shall forthwith cease to be an Institutional Member.

9. Admission of members

9.1 Admission of members other than Honorary Fellows

All applicants recommended by the Admission and Ethical Practices Committee shall become members of the Institute on being elected by the Council, provided that at least half the full membership of the Council was present and at least two thirds of those present had voted in favour.

9.2 Admission of Honorary Fellows

No person shall have the right to apply for the Grade of Honorary Fellow. The Council shall consider only nominations made for the Grade of Honorary Fellow by Fellows of the Institute. Persons shall be elected to the Grade of Honorary Fellow provided that at least two thirds of the full membership of the Council has voted in favour.

9.3 Admission of Institutional Members

Institutional Members shall be admitted by resolution of the Council.

10. Entrance Fees, Subscriptions and Transfer Fees

10.1 The subscriptions, application, transfer and entrance fees of Corporate and non Corporate members shall be fixed by the Council from time to time and confirmed by the Corporate members at a General Meeting.

10.2 Any member of the Institute who has been a member of either the former Chemical Society of Ceylon and /or the Institute for a period not less than twenty five years and has reached the age 60 years, shall continue to be a member without payment of any further subscriptions.

10.3 Annual subscriptions are payable on or before the first day of July each year.

10.4 Any member in arrears for more than one year shall ipso facto not be entitled to any rights and privileges of the Institute and shall have no voting rights at meetings; and shall not be eligible to hold any office.

11. Council

11.1 The Council shall consist of the following all of whom shall serve in an honorary capacity:

- (a) A President, who shall be the person who functioned as President - elect during the preceding year,
- (b) A President-elect, a Vice -President, the Immediate Past-President, two Secretaries, a Treasurer, an Assistant Treasurer, an Editor, an Assistant Editor, Secretary for International Relations, Chairman of the Admissions & Ethical Practices Committee, Chairman of the Board of Trustees, Chairman of the Academic Board of the College of Chemical Sciences and Secretary for Educational Affairs, all of whom shall be nominated by the outgoing Council from amongst the Corporate members of the Institute for election at the Annual General Meeting.

and

- (c) Ten General Members, of whom at least three are Fellows, all of whom shall be elected at the Annual General Meeting

11.2 In making the nominations referred to in 11.1(b) above, the Council shall ensure that

- (a) The President, President-elect, Vice Presidents, the Chairman, Admissions & Ethical Practices Committee and the Chairman, Academic Board of the College of Chemical Sciences are Fellows who are Chartered Chemists.
- (b) The two Secretaries, Treasurer, Editor, Secretary for International Relations and Secretary for Educational Affairs are Corporate members who are Chartered Chemists.

11.3 The member of the Council shall hold office from the 1st day of July each year to the 30th day of June the following year.

11.4 The Council shall meet at least once in two months and the quorum of such meetings shall be nine.

11.5 Any members of the Council not attending three consecutive meetings of the Council, without a valid excuse to the satisfaction of the Council, shall ipso facto cease to be a member of the Council.

12. Powers and Duties of the Council

- a) Shall administer the affairs of the Institute
- b) Shall have the right to employ, reprimand, suspend and dismiss any employee of the Institute and shall determine the salaries, emoluments and duties of such employees.

- c) Shall decide on recommendations made to it by statutory and other committees of the Institute in the exercise of their powers, duties and functions.
- d) Shall have the power to appoint committees consisting of members of the Institute and shall delegate such powers as the Council deems fit. The Council shall also have the right to invite non-members to serve on such committees.
- e) Shall have the right to fill any vacancy, that may arise from time to time in the Council or in any other committee of the Institute.
- f) Shall present a report on the activities of the Institute to the members for the purpose of the Annual General Meeting.
- g) The Council may make, vary and repeal regulations and standing orders for dealing with any matters which under the provisions of these by-laws are to be dealt with by regulations or standing orders of the Council.

13. Powers and Duties of Office Bearers

13.1 President

- a) Shall preside at Council and General Meetings of the Institute
- b) Shall have a casting vote (in the event of an equality of votes) in addition to his own vote.
- c) Shall have the powers to direct any office bearer in the proper functioning of the Institute
- d) Shall have the power to act on behalf of the Council in matters of urgency, that may arise in between meetings of the Council and all such actions shall be communicated to the members of the Council at its next meeting.
- e) Shall have the power to summon any meeting of the Institute in the event of default of duties of office bearers.

13.2 President elect

- a) Shall assist the President in carrying out his duties
- b) Shall act for the President in all matters in the absence of the President

13.2.A Vice - President

Shall assist the President in carrying out his duties.

13.2.B Immediate Past President

- a) Shall assist the President in carrying out his duties
- b) Shall function as Convenor to the College of Past Presidents as provided in by-law 15.A.4

13.3 Secretaries

- a) Shall summon meetings of the Council and General Meetings of the Institute and shall maintain accurate minutes of all such meetings.
- b) Shall maintain books of minutes of meetings of the Council
- c) Shall carry out all duties as directed by the President and/or by the Council
- d) Shall summon special meetings of the Council at the request of the President or at the written request of not less than seven members of the Council, and shall give the members of the Council not less than 24 hours notice of such meetings.

13.4 Treasurer

- a) Shall be responsible for the proper maintenance of all account books of the Institute and for the presentation of all such accounts to the Council and to the membership of the Institute, which reflects a true and proper financial position of the Institute.
- b) Shall make all such payments as directed by the Council
- c) Shall invest funds of the Institute as determined by the Council
- d) Shall ensure that the annual accounts are audited by the Auditors of the Institute and shall have such audited accounts submitted to the Council for adoption and made available to the membership at least one week before the Annual General Meeting.

13.5 Asst. Treasurer

Shall assist the Treasurer and shall carry out all such duties as entrusted to him by the Treasurer.

13.6 Editor

- a) Shall be responsible for the publication of the Institute's official journal and other publications as decided by the Council.
- b) Shall compile and release to the members, newsletters and other publications at intervals of time as decided by the Council.

13.6A Assistant Editor

Shall assist the Editor and carry out all such duties as entrusted by the Editor.

13.7 Secretary for International Relations

Shall liaise with other overseas scientific and professional organisations.

14. Admissions and Ethical Practices Committee

14.1 The Council shall at its first meeting after election appoint an Admission and Ethical Practices Committee comprising nine Fellows, preferably at least three of whom shall be from the previous Committee and provided that one of the nine fellows shall be the Chairman of the Admissions and Ethical Practices Committee elected at the Annual General Meeting in accordance with by-law 11.1.

14.2 The Admissions and Ethical Practices Committee (hereafter referred to as the A & EP Committee) shall have the following powers and functions:-

- a) To consider all applications for membership other than Institutional membership, and shall have the right to interview any applicant and shall make recommendations in writing to the Council on such matters.
- b) It may from time to time make recommendations to the Council on the substance or form of Ethical Practices which is deemed right and proper for the practice of the profession of Chemistry and for the members of the Institute.
- c) Shall inquire into and make recommendations to the Council in all matters of an unethical and/or disciplinary nature referred to it by the Council.

14.3 Four Members shall form the quorum for a meeting of the committee

14.4 The A & EP Committee shall at its first meeting after election elect one of its members as Secretary.

14.5 Any member of the Committee not attending three consecutive meetings without a valid excuse to the satisfaction of the Committee, shall ipso facto cease to be a member of the Committee, and the Council is empowered to fill the vacancy so created in accordance with the requirements of by-law 14.1

15. The College of Chemical Sciences

15.1 The College of Chemical Sciences (hereinafter referred to as College) shall be established to conduct all educational and training activities of the Institute. The College shall be governed by the Council of the Institute. The Council shall have the power to decide on any activities and functions of the College of Chemical Sciences. The functions of the College are:

- (a) to conduct post secondary, Graduateship, Diploma, and Certificate courses in the Chemical Sciences
- (b) to promote education in and application of Chemistry at all levels
- (c) to initiate research activities in collaboration with Universities, Industry and foreign Institutions
- (d) to establish library facilities including database access and technology information
- (e) to conduct refresher/in-service/training courses for scientists and teachers
- (f) to assist Industry in product development, problem solving, quality improvement and product diversification
- (g) to encourage staff exchange between the College and the Universities / Research Institutes in Sri Lanka and overseas
- (h) to publish journals/monographs etc to disseminate the latest know how in the Chemical Sciences
- (i) to take any measures that may be necessary for the attainment of the educational goals of the Institute

15.2 The Academic Board of the College of Chemical Sciences

The Council shall at its first meeting after election appoint an Academic Board of the College of Chemical Sciences to carry out the above functions of the College comprising of

- (a) the Chairman and Secretary (referred to as the Secretary for Educational Affairs) elected at the Annual General Meeting in accordance with By-Law 11.1
 - (b) (i) a Vice Chairman
(ii) an Assistant Secretary
 - (c) the President and one of the Secretaries of the Institute as ex-officio members
 - (d) the Honorary Treasurer of the Institute as an ex-officio member
 - (e) the Chairman of the Admissions and Ethical Practices Committee as an ex-officio member
 - (f) eleven other members of whom preferably at least five shall be from the previous board
- 15.3 The Council may appoint (on contract) a Dean of the College who will be the principal Administrative Officer of the College.
- 15.4 The Academic Board of the College of Chemical Sciences shall have the following powers, duties and functions.
- (a) Shall recommend to the Council names to fill vacancies that may arise from time to time in the Academic Board of the College of Chemical Sciences.
 - (b) Shall have the right to co-opt additional members (Corporate or non-Corporate) for the purpose of effectively carrying out its powers, functions and duties subject to Council approval being obtained. Such persons co-opted shall have no voting rights and could be excluded from any meeting or part of a meeting if such an exclusion is deemed fit in the opinion of the Academic Board of the College of Chemical Sciences.
 - (c) Shall conduct the functions of the College as set out in 15.1
 - (d) Shall have powers to conduct or provide for the conduct of examinations for the award of diplomas, certificates and other distinctions in such branches of Chemistry as the Institute may from time to time deem necessary and to prescribe, approve or provide courses of study for such examinations.
 - (e) Shall inform the Council on all matters concerning courses of study and examinations conducted, sponsored or approved by the Institute, including the appointment, reprimandment, suspension or dismissal of students, examination candidates and other personnel associated with such courses of study and examinations except examiners and lecturers.

- (f) Shall recommend to the Council any reprimandment, suspension or dismissal of examiners and lecturers.
- (g) Shall recommend to the Council for the award of educational qualifications, awards and other distinctions.
- (h) Shall conduct examinations for outside institutions including government departments, when requested on a payment of fees.
- (i) Shall submit an Annual Report to the Council by such date as determined by the Council.
- (j) Shall form and revise regulations governing courses and examinations of the Institute, and shall inform the Council on all such instances.
- (k) Shall meet within a month of its appointment and thereafter at intervals not exceeding two months. The quorum for such meetings shall be seven.
- (l) Shall have the right to decide on the utilisation of the funds in the name of the College in such a manner as to promote the duties and functions of the College of Chemical Sciences, subject to approval of the Council being obtained.

- 15.5 Any member of the Board other than ex-officio members not attending three consecutive meetings of the Board without a valid excuse to the satisfaction of the board, shall ipso facto cease to be a member of the Board.

15.A College of Past Presidents

- 15.A.1 All living Past Presents of the Chemical Society of Ceylon and the Institute of Chemistry, Ceylon shall, on the date of commencement of this by-law, ipso-facto become members of the College of Past Presidents and be entitled to receive an official Badge of Past President in recognition of same.
- 15.A.2 Every retiring President of the Institute, at the end of his term of office shall ipso-facto become a member of the College and shall be presented with the official Badge of Past-President by the incoming President.

- 15.A.3 The College shall have the following duties, powers and functions:
- (a) shall advise the Council of the Institute on any matter pertaining to the well-being and good interests of the Institute either at its own instance or on a request made by the President or the Council.
 - (b) Shall, after obtaining and considering relevant details and particulars, recommend, not later than the end of April of each year, the name or names of suitable persons who can be considered, interalia, by the Council for nomination to the office of Vice President as per By-Law 11.1(b)
 - (c) Shall, in consultation with the Council and in the interests of the Institute, its members or the members of the College of Past Presidents, carry out any activity as may be deemed expedient or necessary by the College or referred to it by the Council.
 - (d) Shall meet during the Annual Sessions of the Institute and, interalia, elect one amongst themselves to function as Chairman for the ensuing year, the College shall also meet thereafter as may be necessary on dates and times to be decided upon by the Chairman in consultation with members of the College. In electing its Chairman every year, the College shall give adequate consideration & recognition to seniority and age, subject to availability and willingness.

15.A.4 The Immediate Past President shall function as Convenor to the College of Past Presidents.

15.A.5 Notwithstanding the provisions of By-Law 11.3, the formal presentation of the badge of Past President to the retiring President together with the formal induction of the incoming President by presenting him the badge of President by the retiring President shall preferably take place during the Annual Dinner during each Annual Session of the Institute held usually in the month of June of each year.

15.B Board of Trustees

15.B.1 The Council shall at its first meeting after election appoint a Board of Trustees comprising of seven Fellows, all of whom shall be members of the College of Presidents, with preferably at least three being from the previous Board and provided that one of seven Fellows so appointed shall be the Chairman of the Board of Trustees elected at the Annual General Meeting in accordance with By-Law 11.1(a)

15.B.2 The Board of Trustees shall have the following powers, duties and functions:-

- (a) To advise the Council of the Institute on matters pertaining to
 - (i) the acquisition and disposition of any immovable property of the Institute
 - (ii) the holding, raising and applying all immovable property acquired or held by the Institute for the furtherance of the objects of the Corporation (Institute)
 - (iii) the buying, selling, conveying, devising, assigning, exchanging or otherwise disposing or of mortgaging any such immovable property and
 - (iv) the expending and investing of funds in relation to (i), (ii) & (iii) above.
- (b) With the approval of the Council, for and on behalf of the Corporation, (Institute) and subject to the Act and By-Laws of the Corporation and in furtherance of the objects of the Corporation (Institute), to
 - (i) build upon, pull down, re-build, add to, alter, repair and improve buildings and premises for the use of the Corporation (Institute) and
 - (ii) enter into any agreement or arrangement with any government or other authorities or any other body or person and to obtain from such authority, body or person all rights, concessions and privileges.
- (c) To submit an Annual Report to the Council by such date as shall be determined by the Council.
- (d) To do all other things incidental to or conducive to the furtherance of the objects of the Corporation (Institute) such as maintaining in good condition all the immovable property of the Institute.

- 15.B.3 The Honorary Treasurer of the Institute shall function as ex-officio Secretary to the Board of Trustees but shall not be an ex-officio member of the Board of Trustees.
- 15.B.4 Every year the Board of Trustees shall meet within one month of its appointment and thereafter at intervals not exceeding three months. The quorum of such meeting shall be four.
- 15.B.5 Any member of the Board not attending three consecutive meetings without a valid excuse to the satisfaction of the Board shall ipso facto cease to be a member of the Board and the Council is empowered to fill the vacancy so created in accordance with the requirements of by-law 15.B.1

16. Finance

- 16.1 The financial year of the Institute shall be from the 1st day of January to the 31st day of December of the same year.
- 16.2 The authorised signatories of the bank accounts shall be, the Treasurer and either the President or one of the Secretaries. However, if the Treasurer is not available for this purpose, the President shall have the right to authorise in writing the Assistant Treasurer to sign on behalf of the Treasurer.
- 16.3 The Council shall have the power to expend moneys and invest funds obtained under these by-laws or otherwise in the name of the Corporation (Institute) in such manner as may be necessary or expedient for the furtherance of the objects of the Corporation (Institute); it shall manage all financial affairs as may be necessary and decide on the cash imprests that should be held by any office - bearer or employee of the Corporation (Institute)

17. General Meetings

17.1 Annual General Meeting (*hereafter referred to as AGM*)

- 17.1.1 The AGM shall be held on or before the 30th day of June each year, at such time and place as decided by the Council. The quorum for the AGM shall be twenty five Corporate members.

- 17.1.2 The Secretary shall give notice (with agenda) of the AGM to each Corporate member at least twenty one days before such meetings and shall display such notice on the office notice board of the Institute. The non receipt of the notice by any Corporate member shall not invalidate the meeting.

17.1.3 The business of the AGM shall include:-

- (a) adoption of the Annual Report of the Council
- (b) adoption of the audited statement of accounts for the financial year ended, which shall be accompanied by the auditors report;
- (c) election of the office bearers and general members of the Council as stipulated in by-laws 11.1,
- (d) election of an auditor
- (e) the consideration of any motion duly proposed and seconded by two Corporate members of by the Council, of which not less than 14 says notice in writing is given to the Secretaries of the Institute.

17.2 Special General Meetings

The Secretary shall summon a special general meeting of the Corporate members within thirty days of a resolution passed by the Council or on receipt of a written request of not less than twenty five Corporate members stating clearly the purpose for which the meeting is requested. No business other than that specified in the notice of such meetings will be transacted at such meeting. The notice of such meetings for which the quorum shall be thirty Corporate members shall be sent to every Corporate member stating the business to be transacted and giving at least seven days notice.

18. Termination, Suspension, Expulsion and Re-Admission of Members

- 18.1 Any member who is in arrears of membership subscriptions for a period of three years from the date on which payment is due shall ipso facto cease to be a member of the Institute, but shall have the right of re-admission to the same grade of membership by the payment of the current year's subscription together with all arrears at the time of cessation of membership.

- 18.2 The Council shall have the power to expel from membership, suspend membership for a period, reprimand or admonish a member who has been found guilty of misconduct or of unethical practice, after a due inquiry held by the A & EP Committee and provided at least two thirds of the full membership of the Council has voted in favour of such disciplinary action.
- 18.3 Any member, whose membership is terminated or suspended or who is expelled from membership in accordance with by-laws 18.1 or 18.2, shall return forthwith to the Council any certificate of membership issued to him and shall not be entitled to the use of any qualifications and designatory letters of the Institute, unless the Council shall otherwise decide.
- 18.4 Any member whose membership is terminated shall forfeit all membership fees paid in advance.

19. Alteration of By-Laws

The Council when it may consider it expedient, or when it may be directed by resolution at a General meeting, shall make recommendations to the Corporate members for any new by-laws or for any alteration to the existing by-laws and such recommendations of additions or changes in by-laws shall come into operation provided not less than two thirds of those present at a General Meeting of Corporate members shall have voted in favour.

20. Seal

The Council shall provide a common seal of the Institute and shall be responsible for its safe custody. The seal shall be affixed to such certificates, deeds and documents as are prescribed by the Council in the presence of such officers of the Institute (who shall sign the documents) as the Council shall from time to time by standing order authorities.

REGULATIONS

MEMBERSHIP SUSCRIPTION REGULATIONS

(effective from 01.07.03) (as per by-law 10)

1.1 Annual Membership Subscription:

| | | |
|-----------------|---|-----------|
| Fellow & Member | - | Rs.600/- |
| Associates | - | Rs.450/- |
| Licentiate | - | Rs.400/- |
| Institutional | - | Rs.2500/- |
| Affiliates | - | Rs.250/- |

Application processing fee of Rs. 1000/- for the admission as Chartered Chemist.

The above mentioned fees are payable on the 1st July day of every year, and will be in respect of the year commencing on that day and ending on the 30th June in the following year.

1.2 Block Membership Fee (to obtain membership for life)

A payment of a sum of Rs.6,000/- by any member would secure membership for life, provided the member concerned is not in any arrears of any subscription including the current year membership subscription. No extra subscription other than the application processing fee will be payable on election of such a member to a higher grade.

2. Entrance Fee :

2.1 The entrance fees payable by all new applicants (*not being already members of the Institute*) for admission will be Rs. 500/- for all grades.

The relevant entrance fee must be attached to the application.

2.2 In the event an application is not accepted by the Council, entrance fees paid will be refunded by the Institute.

3. Transfer Fee:

No transfer fee will be payable by any member when transferred to a higher grade of membership.

4. Application Processing Fee:

A non-refundable application processing fee of Rs.200/- is payable with every application for admission/transfer to any grade of membership to cover the cost of processing the application.

5. Subscription - Affiliate Membership:

Notwithstanding anything to the contrary in these regulations an Affiliate Member will be required to pay an all composite membership fee for life of Rupees Fifteen thousand inclusive of entrance fees and processing fees for the application.

Luxembourg, 8 June 2009

Prof. Jung-Il Jin
President
IUPAC
PO Box 13757
Research Triangle Park, NC 27709-3757, USA

Dear Prof. Jung-Il Jin
President of IUPAC,

I have the pleasure to submit the application of the National Research Fund, Luxembourg, to apply for the Associate National Adhering Organization status.

As requested, I send you in annexe:

- The application form
- A brief description of the strategy of the FNR
- A summary of our activities in 2008
- Our annual report 2008
- A copy of the law of the 31 May 1999 establishing the FNR modified by the law of 19 August 2008, available only in French

More information may also be found on our web site: www.fnr.lu .

If you require any further information, feel free to contact

Dr. Carlo Duprel
Programme Manager
Tel: +352 261925-37 / Fax: +352 261925-35
E-mail: carlo.duprel@fnr.lu

Yours faithfully



Raymond BAUSCH
Secretary General



International Union of Pure and Applied Chemistry

Secretariat: P.O. Box 13757, Research Triangle Park, NC 27709-3757, USA
 TEL: 1-919-485-8700 FAX: 1-919-485-8706 EMAIL: secretariat@iupac.org

Application for IUPAC Adhering Organization Status

The formal Members of IUPAC are the National Adhering Organizations, and this document sets out the information required for application. The Council is the governing body of IUPAC, and meets every other year (odd numbered years) at the IUPAC General Assembly. Council must review all applications and is responsible for approving admission. An application may be submitted at any time; however, an application received no later than 01 February of the year in which a Council meeting is to be held (usually in August) will enable a decision to be made at that Council meeting.

Guidelines/Information for becoming an IUPAC National Adhering Organization:

- (i) According to the IUPAC Statutes, a country may join the Union through only one national organization representing its chemists. This National Adhering Organization may be a national chemical council, a national society representing chemistry, a national academy of science, or any other institution or association of institutions representative of national chemical interests.
- (ii) For countries in which there is not a single body that represents all chemists, a National Chemistry Committee for IUPAC may be formed to act as the NAO. This committee should represent all members of the various chemical societies.
- (iii) The word country may include a specific geographic territory that is widely recognized as having the cultural and administrative characteristics usually associated with an independent state but without necessarily having complete independence or sovereignty.
- (iv) NAOs pay National Subscriptions annually to IUPAC. The amount of the National Subscription is based on the chemical turnover for that country, with a minimum National Subscription of USD 1 000. The chemical turnover is the value of chemical products produced in a country as reported by UNIDO and/or CEFIC.
- (v) The National Adhering Organizations are the Members of the Union.

IUPAC also offers the possibility of Associate National Adhering Organization (ANAO) status.

The Associate National Adhering Organizations have "observer" status only and are not voting members of IUPAC. There is a time limit of four years for ANAO status. Over that four-year period, it is anticipated that ANAOs will progressively engage in IUPAC activities and become, at the end, full members with NAO status. It is not however required that an organization first become an ANAO, and it may become an NAO directly.

Organizations applying for ANAO status may also submit an application at any time. The application will be reviewed by the Executive Committee, which is responsible for approving admission.

Guidelines/Information for becoming an IUPAC Associate National Adhering Organization:

Guidelines (i), (ii), and (iii) above apply also to the composition of ANAOs.

- (iv) ANAOs pay annual dues to IUPAC of USD 250.
- (v) The Associate National Adhering Organizations are not Members of the Union but have Observer status.


Please visit this link: <http://www.iupac.org/general/hints.html> for further information regarding the benefits and duties of National Adhering Organizations and Associate National Adhering Organizations. For example, IUPAC-sponsored conferences generally can only be held in countries with NAO status.

When submitting this application, the following items should be included:

Application for IUPAC Adhering Organizations

- (i) A letter from the organization addressed to the President of IUPAC formally applying for Associate National Adhering Organization status or National Adhering Organization Status in IUPAC.
- (ii) A copy of the Statutes & Bylaws of the organization, if they are available in English, or a summary in English if the originals are available only in another language.
- (iii) A brief description of the goals of the organization and its significant activities.

Please return an electronic copy of the completed application and enclosures to the IUPAC Secretariat by e-mail to secretariat@iupac.org. Printed materials should be submitted to the above address.

| <i>For administrative use only</i> | <i>Submitted</i> _____ |
|---|---|
| 1 Check One | <input checked="" type="checkbox"/> Applying for National Adhering Organization Status <input type="checkbox"/> Applying for Associate National Adhering Organization Status |
| 2 Organization Name | National Research Fund Luxembourg |
| 3 Country/Region that the Organization Represents | Luxembourg |
| 4 Address | Fonds National de la Recherche B.P. 1777 L-1017 Luxembourg |
| 5 Organization Contact to IUPAC <i>Will be published if application is approved</i> | Dr. Carlo Duprel Programme Manager -----  Fonds National de la Recherche Luxembourg Fonds National de la Recherche 6, rue Antoine de Saint-Exupéry P.O. Box 1777 L-1017 Luxembourg Tel: +352 261925-37 / Fax: +352 261925-35 E-mail: carlo.duprel@fnr.lu www.fnr.lu |
| 6 Name of the person submitting this form if not the Responsible Person | (including address and e-mail) |
| 7 Approximately how many members does the organization serve? | |
| 8 Please list any publications that the organization produces. | Annual report 2008 |

Application for IUPAC Adhering Organizations

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| 9 How does the organization plan to relay the benefits of IUPAC membership to its membership? | By regular information via our e-mail list By nominating the adequate experts in the committes |
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1825

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RECUEIL DE LEGISLATION

A — N° 88

6 juillet 1999

Sommaire

FONDS NATIONAL DE RECHERCHE

Loi du 31 mai 1999 portant création d'un fonds national de la recherche dans le secteur public page **1825**

Loi du 31 mai 1999 portant création d'un fonds national de la recherche dans le secteur public.

Nous JEAN, par la grâce de Dieu, Grand-Duc de Luxembourg, Duc de Nassau;

Notre Conseil d'Etat entendu;

De l'assentiment de la Chambre des Députés;

Vu la décision de la Chambre des Députés du 6 mai 1999 et celle du Conseil d'Etat du 18 mai 1999 portant qu'il n'y a pas lieu à second vote;

Avons ordonné et ordonnons:

Titre I: Fonds national de la Recherche

Art. 1^{er}. Il est créé un établissement public sous la dénomination de «Fonds national de la Recherche», ci-après dénommé le «Fonds».

L'établissement dispose de la personnalité juridique et jouit de l'autonomie financière et administrative, sous la tutelle du ministre ayant dans ses attributions la recherche scientifique et la recherche appliquée.

Sans préjudice des dispositions particulières de la présente loi, l'établissement est géré dans les formes et selon les méthodes du droit privé.

Le siège de l'établissement est fixé à Luxembourg.

Art. 2. Le Fonds a pour mission

- de recevoir, de gérer et d'employer des allocations et dons provenant de sources publiques ou privées en vue de la promotion sur le plan national de la recherche et du développement technologique dans le secteur public, appelés par la suite «R&D», ainsi que
- d'entretenir un processus de réflexion continu en vue de l'orientation de la politique nationale de R&D, en fonction des données économiques et de l'évolution scientifique et technologique ainsi que sur base d'études approfondies.

A cet effet, il est appelé à

- élaborer des propositions relatives aux objectifs de la politique nationale en matière de R&D,
- proposer les actions prioritaires en vue d'atteindre ces objectifs,
- élaborer, sur base des priorités retenues, des programmes pluriannuels d'activités et contribuer par ce biais à l'établissement d'un programme pluriannuel de la R&D au plan national,
- assurer par l'attribution des moyens financiers mis à sa disposition la réalisation de ces programmes d'activités pluriannuels et veiller au suivi de leur mise en oeuvre,

- assurer l'évaluation systématique et continue des résultats obtenus, afin de permettre tout réajustement des priorités s'avérant nécessaire,
- promouvoir en général la coordination efficace des actions de R&D nationales ainsi que la participation luxembourgeoise aux programmes de coopération internationale de R&D,
- présenter, de sa propre initiative, au ministre ayant dans ses attributions la recherche scientifique et la recherche appliquée, toute proposition, suggestion et information relative à la mise en oeuvre de la politique nationale de R&D.

Art. 3. Le Fonds encourage l'élaboration et participe au soutien de la réalisation des programmes d'activités pluriannuels visés à l'article 2, par le biais d'une contribution financière aux dépenses de réalisation des activités de recherche concernées.

Peuvent bénéficier de l'intervention du Fonds:

- les centres de recherche publics créés sur base de la loi du 9 mars 1987 ayant pour objet: 1. l'organisation de la recherche et du développement technologique dans le secteur public; 2. le transfert de technologie et la coopération scientifique et technique entre les entreprises et le secteur public,
- les établissements publics d'enseignement supérieur établis sur base de la loi du 11 août 1996 portant réforme de l'enseignement supérieur,
- le Centre d'Etudes de Populations, de Pauvreté et de Politiques Socio-Economiques créé par la loi du 10 novembre 1989, ainsi que
- les organismes, services et établissements publics autorisés à entreprendre, dans les domaines qui les concernent, des activités de recherche ainsi que de développement et de transfert technologiques visant à promouvoir le progrès scientifique ou l'innovation technologique.

Les dépenses de réalisation éligibles comprennent notamment les dépenses de personnel, les dépenses pour services de tiers, les dépenses de fonctionnement et les dépenses d'acquisitions, ainsi que toute autre dépense liée à la réalisation des activités de recherche concernées et la diffusion de leurs résultats. Les dépenses d'acquisition, de construction ou d'aménagement d'immeubles peuvent être retenues comme dépenses éligibles, si de telles dépenses sont jugées indispensables pour la réalisation de ces activités de recherche.

Les modalités relatives à la présentation, la sélection et la réalisation des activités de recherche sont arrêtées par règlement grand-ducal.

Dans le cadre de sa mission, le Fonds peut organiser des activités visant la promotion de la culture scientifique, attribuer des bourses à des chercheurs et scientifiques et allouer des subsides à des particuliers ainsi qu'à des associations poursuivant des activités à caractère scientifique.

L'intervention du Fonds peut également porter sur la participation des bénéficiaires précités aux programmes organisés par la Communauté européenne ou par des organisations internationales.

Art. 4. En vue de l'exécution de sa mission, le Fonds est autorisé à conclure des conventions avec l'Etat ainsi qu'avec des personnes physiques ou morales, à s'associer avec des partenaires des secteurs public ou privé, personnes physiques ou morales, ainsi qu'à adhérer à des organisations nationales et internationales.

Art. 5. Le Fonds est administré par un conseil d'administration qui comprend

- un membre proposé par le ministre ayant dans ses attributions la recherche scientifique et la recherche appliquée,
- un membre proposé par le ministre ayant dans ses attributions l'enseignement supérieur,
- un membre proposé par le ministre ayant dans ses attributions la recherche-développement industrielle et le transfert de technologies,
- un membre proposé par le ministre ayant dans ses attributions le budget,
- deux membres proposés par le Conseil de Gouvernement après consultation des autres ministres organisant de la R&D conformément aux dispositions de l'article 1^{er} de la loi du 9 mars 1987 ayant pour objet: 1) l'organisation de la recherche et du développement technologique dans le secteur public; 2) le transfert de technologie et la coopération scientifique et technique entre les entreprises et le secteur public, ou ayant sous leur surveillance un centre de recherche public, ainsi que
- six membres proposés par le Gouvernement parmi des personnalités du secteur privé reconnues pour leur compétence en matière de R&D.

Ne peuvent devenir membre du conseil d'administration le ou les fonctionnaires qui, en vertu de leurs fonctions, sont appelés à surveiller ou à contrôler l'établissement ou qui, en vertu des pouvoirs leur délégués, approuvent des actes administratifs de l'établissement ou signent des ordonnances de paiement ou toute autre pièce administrative entraînant une dépense de l'Etat en faveur de l'établissement.

Les membres du conseil d'administration sont nommés et révoqués par arrêté grand-ducal.

Le président et le vice-président du conseil d'administration sont désignés par le gouvernement réuni en conseil sur proposition du ministre de tutelle.

Le conseil peut choisir un secrétaire administratif hors de son sein.

Les membres du conseil sont nommés pour une durée de cinq ans, renouvelable à son terme.

Le conseil d'administration peut à tout moment être révoqué par le Grand-Duc. Toutefois le Grand-Duc peut révoquer un membre avant l'expiration de son mandat sur proposition du ministre de tutelle, le conseil d'administration entendu en son avis.

En cas de démission, de décès ou de révocation avant terme du mandat d'un administrateur, il est pourvu à son remplacement dans le délai de deux mois à partir de la vacance de poste par la nomination d'un nouveau membre qui achève le mandat de celui qu'il remplace.

Le conseil d'administration a la faculté de recourir à l'avis d'experts s'il le juge nécessaire. Les experts peuvent assister avec voix consultative aux réunions du conseil d'administration, si celui-ci le leur demande.

Les indemnités et jetons de présence des membres et participants aux réunions du conseil d'administration sont fixés par le Gouvernement et sont à charge du Fonds.

Art. 6. Le conseil d'administration se réunit sur convocation de son président aussi souvent que les intérêts du Fonds l'exigent et au moins deux fois par an. Il doit être convoqué à la demande d'au moins la moitié de ses membres. Le conseil d'administration ne peut prendre de décision que si la majorité de ses membres est présente. Il décide à la majorité des voix des membres présents. En cas d'égalité des voix, celle du président est prépondérante.

Pour le surplus, le fonctionnement du conseil d'administration est réglé dans le règlement d'ordre intérieur du Fonds.

Art. 7. Le conseil d'administration prend toutes les décisions en relation avec la gestion de l'établissement, sous réserve de l'approbation du ministre de tutelle pour ce qui est des points suivants:

- 1) le budget d'investissement et d'exploitation et les comptes de fin d'exercice;
- 2) les emprunts à contracter;
- 3) l'acceptation ou le refus de dons et de legs;
- 4) les acquisitions, les aliénations, les échanges d'immeubles et leurs affectations ainsi que les conditions de baux à contracter;
- 5) l'engagement et le licenciement du personnel dirigeant de l'établissement; dont notamment le secrétaire général;
- 6) la grille des emplois et leur classification ainsi que le niveau de rémunération du personnel.

Les actions judiciaires sont intentées et défendues au nom de l'établissement concerné par le président du conseil d'administration qui représente l'établissement en question dans tous les actes publics et privés.

Art. 8. Le conseil d'administration est assisté du conseil scientifique qui est son organe consultatif en matière scientifique.

Le conseil scientifique est composé des personnes suivantes:

- un représentant par centre de recherche public créé sur base de la loi du 9 mars 1987 ayant pour objet: 1. l'organisation de la recherche et du développement technologique dans le secteur public; 2. le transfert de technologie et la coopération scientifique et technique entre les entreprises et le secteur public,
- un représentant du Centre d'Etudes de Populations, de Pauvreté et de Politiques Socio-Economiques créé par la loi du 10 novembre 1989,
- un représentant par établissement public d'enseignement supérieur établi sur base de la loi du 11 août 1996 portant réforme de l'enseignement supérieur,
- des personnalités, luxembourgeoises ou étrangères, extérieures aux établissements visés ci-dessus, choisies en raison de leur compétence. Leur nombre dépasse d'une unité le nombre de ces établissements.

Les missions du conseil scientifique sont arrêtées par règlement grand-ducal.

Les membres du conseil scientifique sont nommés par le ministre ayant dans ses attributions la recherche scientifique et la recherche appliquée, les membres visés aux trois premiers tirets sont nommés sur proposition des institutions concernées. Le mandat des membres a une durée de 5 ans; il est renouvelable.

Après consultation du conseil d'administration et du conseil scientifique, le ministre ayant dans ses attributions la recherche scientifique et la recherche appliquée désigne le président parmi les membres du conseil scientifique.

En cas de démission, de décès ou de révocation d'un membre du conseil scientifique, il est pourvu, dans le délai d'un mois, à la vacance de poste par la nomination d'un nouveau membre qui achève le mandat de celui qu'il remplace.

Pour l'accomplissement de sa mission, le conseil scientifique peut faire appel à des experts.

Le fonctionnement du conseil scientifique est réglé par le règlement d'ordre intérieur du Fonds.

Les indemnités et jetons de présence des membres et participants aux réunions du conseil scientifique sont fixés par le Gouvernement et sont à charge du Fonds.

Art. 9. Le conseil d'administration est assisté par du personnel qui a le statut d'employés privés.

Des fonctionnaires ou employés de l'Etat peuvent être affectés au Fonds en vue d'y effectuer des tâches relevant de la compétence du Fonds pour une durée déterminée, à temps plein ou à temps partiel, selon des modalités à déterminer par règlement grand-ducal et dans le cadre des limites budgétaires et des dispositions légales et réglementaires en vigueur. Une telle affectation est renouvelable et limitée à la durée des tâches attribuées. Aucun droit quant à une nouvelle affectation ne peut en résulter.

Le règlement grand-ducal précité fixe les modalités de rémunération des intéressés ainsi que la répartition de la charge des rémunérations entre le Fonds et l'Etat.

Le conseil d'administration nomme un secrétaire général dont il définit les attributions administratives et financières.

Art. 10. Le Fonds peut disposer notamment des ressources suivantes:

- des allocations provenant du budget des recettes et des dépenses de l'Etat et dont le montant sera fixé chaque année par la loi budgétaire,

- des recettes pour prestations fournies,
- des dons et legs, en espèces ou en nature,
- des revenus issus de la gestion du Fonds et de la valorisation de son patrimoine.

Le conseil d'administration arrête annuellement le budget du Fonds et le soumet pour avis au ministre ayant dans ses attributions la recherche scientifique et la recherche appliquée avant le 1^{er} avril de l'année précédant l'exercice en question, ce dernier saisit le Gouvernement pour approbation.

Art. 11. Des locaux, des installations et des équipements, appartenant à l'Etat ou loués par l'Etat, peuvent être mis à la disposition du Fonds.

Art. 12. Les comptes du Fonds sont tenus suivant les règles de la comptabilité commerciale. L'exercice financier coïncide avec l'année civile. A la clôture de chaque exercice le secrétaire général soumet au conseil d'administration un projet de bilan et un projet de compte de profits et pertes.

Art. 13. Le conseil d'administration établit annuellement un rapport d'activités sur l'exercice précédent, une description des activités de l'exercice en cours et un programme des activités concernant le ou les exercices suivants qu'il soumet avant le 1^{er} avril au ministre ayant dans ses attributions la recherche scientifique et la recherche appliquée. Ces éléments peuvent être incorporés au rapport global sur les activités de R&D financées par l'Etat, que le Gouvernement soumet annuellement à la Chambre des députés en application des dispositions de l'article 24 de la loi du 9 mars 1987 précitée.

Art. 14. Les travaux, fournitures et services pour compte du Fonds ne sont pas soumis aux lois et règlements régissant les marchés publics, à l'exception du règlement grand-ducal du 27 janvier 1994 portant application en droit luxembourgeois des directives CEE relatives aux marchés publics de travaux, de fournitures et de services.

Art. 15. Un réviseur d'entreprises, désigné par le Gouvernement en conseil, est chargé de contrôler les comptes du Fonds ainsi que la régularité des opérations effectuées et des écritures comptables.

Le réviseur d'entreprises doit remplir les conditions requises par la loi du 28 juin 1984 portant organisation de la profession de réviseur d'entreprises. Son mandat a une durée de trois ans et il est renouvelable. Sa rémunération est à charge du Fonds. Il remet son rapport au conseil d'administration pour le 15 mars. Il peut être chargé par le conseil d'administration de procéder à des vérifications spécifiques.

Le conseil d'administration approuve ensuite les comptes de fin d'exercice et décide de l'affectation de l'excédent de recettes éventuel.

Pour le 1^{er} mai au plus tard, le conseil d'administration présente au ministre ayant dans ses attributions la recherche scientifique et la recherche appliquée les comptes de fin d'exercice accompagnés d'un rapport circonstancié sur la situation et le fonctionnement du Fonds, ainsi que du rapport du réviseur d'entreprises.

Titre II: Dispositions fiscales

Art. 16. Le Fonds est affranchi de tous impôts et taxes au profit de l'Etat et des communes à l'exception de la taxe sur la valeur ajoutée et des taxes rémunératoires.

L'application de l'article 150 de la loi du 4 décembre 1967 concernant l'impôt sur le revenu est étendue au Fonds.

Les actes passés au nom et en faveur du Fonds sont exempts des droits de timbre, d'enregistrement, d'hypothèque et de succession.

Les dons en espèces alloués au Fonds sont déductibles dans le chef du donateur à titre de dépenses spéciales dans les limites et conditions prévues par les articles 109 et 112 de la loi du 4 décembre 1967 concernant l'impôt sur le revenu. A cet effet, l'article 112, alinéa 1^{er}, numéro 1 de la loi précitée est complété par l'ajout des termes «, au Fonds national de la recherche».

Titre III: Dispositions budgétaires

Art. 17. La loi du 21 décembre 1998 concernant le budget des recettes et dépenses de l'Etat pour l'exercice 1999 est amendée par l'ajout d'un crédit de 50.000.000 F inscrit à l'article nouveau 11.6.33.012 libellé «Dotations au Fonds National de la Recherche».

Mandons et ordonnons que la présente loi soit insérée au Mémorial pour être exécutée et observée par tous ceux que la chose concerne.

*La Ministre de l'Education Nationale
et de la Formation Professionnelle,
Erna Hennicot-Schoepges*

Palais de Luxembourg, le 31 mai 1999.

Pour le Grand-Duc:
Son Lieutenant-Représentant
Henri
Grand-Duc héritier

Doc. parl. 4438; sess. ord. 1997-1998 et 1998-1999.

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RECUEIL DE LEGISLATION

A — N° 100

5 octobre 2000

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Règlement grand-ducal du 27 juillet 2000 arrêtant les missions du conseil scientifique du Fonds national de la Recherche.

Nous JEAN, par la grâce de Dieu, Grand-Duc de Luxembourg, Duc de Nassau;

Vu la loi du 31 mai 1999 portant création d'un fonds national de la recherche dans le secteur public et notamment son article 8;

Vu l'article 2(1) de la loi du 12 juillet 1996 portant réforme du Conseil d'Etat et considérant qu'il y a urgence ;

Sur le rapport de Notre Ministre de la Culture, de l'Enseignement Supérieur et de la Recherche et après délibération du Gouvernement en Conseil;

Arrêtons:

Art. 1^{er}. En vertu des dispositions de l'article 8 de la loi du 31 mai 1999 portant création d'un fonds national de la recherche dans le secteur public, le conseil scientifique du Fonds national de la Recherche, ci-après appelé «le Fonds», est appelé à assister le conseil d'administration, dont il est l'organe consultatif en matière scientifique.

Le conseil scientifique a notamment pour missions :

1. d'élaborer et de soumettre au conseil d'administration des propositions relatives
 - aux objectifs de la politique nationale en matière de R&D;
 - aux actions prioritaires en vue d'atteindre ces objectifs ;
 - aux programmes pluriannuels d'activités découlant de ces actions ;
 respectivement de donner son avis sur de telles propositions soumises au Fonds
2. d'assister le conseil d'administration en matière du suivi scientifique et procédural des activités et programmes mis en œuvre par le Fonds ;
3. d'assister le conseil d'administration dans le suivi et le contrôle des activités subventionnées par le Fonds sur base de conventions ;
4. de contribuer à assurer l'évaluation systématique et continue des résultats obtenus, en vue de garantir la qualité scientifique et la pertinence socio-économique des activités du Fonds ;
5. de formuler des propositions visant à promouvoir la coordination efficace des actions de R&D nationales ainsi que la participation luxembourgeoise aux programmes de coopération internationale de R&D ;
6. de donner son avis sur toute question que le conseil d'administration lui soumettra.

Art. 2. Notre Ministre de la Culture, de l'Enseignement Supérieur et de la Recherche est chargée de l'exécution du présent règlement, qui sera publié au Mémorial.

*La Ministre de la Culture,
de l'Enseignement Supérieur
et de la Recherche,*
Erna Hennicot-Schoepges

Palais de Luxembourg, le 27 juillet 2000.
Pour le Grand-Duc:
Son Lieutenant-Représentant
Henri
Grand-Duc héritier

Règlement grand-ducal du 27 juillet 2000 arrêtant les modalités relatives à la présentation, la sélection et la réalisation des activités de recherche bénéficiant d'une intervention du Fonds national de la Recherche.

Nous JEAN, par la grâce de Dieu, Grand-Duc de Luxembourg, Duc de Nassau;

Vu la loi du 31 mai 1999 portant création d'un fonds national de la recherche dans le secteur public et notamment son article 3;

Vu l'article 2(1) de la loi du 12 juillet 1996 portant réforme du Conseil d'Etat et considérant qu'il y a urgence ;

Sur le rapport de Notre Ministre de la Culture, de l'Enseignement Supérieur et de la Recherche et après délibération du Gouvernement en Conseil;

Arrêtons:

Art. 1^{er}. - Champ d'application

En vertu des dispositions de l'article 3 de la loi du 31 mai 1999 portant création d'un fonds national de la recherche dans le secteur public, le Fonds national de la Recherche, ci-après appelé «le Fonds», encourage l'élaboration et participe au soutien de la réalisation des programmes d'activités pluriannuels visés à l'article 2 de la loi précitée.

L'intervention du Fonds est réalisée sous la forme d'une contribution financière aux dépenses de réalisation des activités de recherche prévues dans le cadre des programmes d'activités pluriannuels précités. Par activité de recherche il faut entendre la réalisation d'un projet de recherche, respectivement la participation à la réalisation d'un tel projet, ou la diffusion de résultats de projets de recherche.

Les dépenses de réalisation éligibles comprennent notamment les dépenses de personnel, les dépenses pour services de tiers, les dépenses de fonctionnement et les dépenses d'acquisitions, ainsi que toute autre dépense liée à la réalisation des activités de recherche concernées et la diffusion de leurs résultats. Les dépenses d'acquisition, de construction ou d'aménagement d'immeubles peuvent être retenues comme dépenses éligibles, si de telles dépenses sont jugées indispensables pour la réalisation de ces activités de recherche.

Art. 2. - Conditions d'éligibilité.

Peuvent bénéficier d'une telle contribution financière les bénéficiaires énumérés au paragraphe 2 de l'art. 3 de la loi du 31 mai 1999 portant création d'un fonds national de la recherche dans le secteur public, ci-après appelés «les bénéficiaires du Fonds».

Les activités de recherche doivent être réalisées par les bénéficiaires du Fonds ou en partenariat avec ceux-ci.

Art. 3. - Présentation des demandes de contribution financière.

Les demandes de contribution financière sont à adresser au Fonds. A cette demande un dossier est à joindre. Le conseil d'administration arrête la forme et le contenu de la demande, respectivement du dossier, et fixe les délais dans lesquels les demandes doivent être introduites. Toute information relative à la présentation de la demande peut être requise auprès du secrétaire général du Fonds.

Art. 4. - Instruction des demandes de contribution financière.

Après avoir constaté que les dossiers de demande sont complets et conformes aux règles applicables, le secrétaire général les transmet pour avis au conseil scientifique du Fonds et au conseil d'administration.

Le conseil d'administration du Fonds décide de la suite à réserver à la demande. La sélection des demandes se fait en tenant compte notamment :

1. de la qualité scientifique des activités proposées (facteur créativité, facteur nouveauté ou innovation, emploi de méthodes scientifiques, production de connaissances nouvelles);
2. de leur intérêt socio-économique;
3. du rapport entre les dépenses de réalisation prévues et les résultats escomptés ;
4. en général, de leur concordance avec les objectifs et priorités des programmes d'activités pluriannuels visés à l'article 2 de la loi du 31 mai 1999 portant création d'un Fonds national de la recherche dans le secteur public.

Le conseil d'administration peut compléter les critères de sélection ci-dessus en fonction des objectifs de la politique nationale en matière de R&D.

Les décisions du conseil d'administration sont consignées dans un procès-verbal transmis au secrétariat pour exécution.

Art. 5. - Conventions.

Les contributions financières allouées dans l'intérêt de l'exécution des activités de recherche font l'objet de conventions à conclure entre le Fonds et le ou les bénéficiaires concernés.

Ces conventions régissent les conditions et modalités de l'allocation de la contribution financière et règlent les questions relatives aux droits de propriété intellectuelle et industrielle. Y sont fixés notamment:

- le montant de la contribution financière et les modalités de son versement,
- les modalités de réalisation des activités de R&D concernées, notamment la période d'exécution
- les modalités de suivi, de contrôle et d'évaluation de ces activités pendant et après leur accomplissement,
- les mesures à prendre et les sanctions applicables en cas d'inexécution, de retards dans la réalisation ou d'autres défaillances par rapport aux conditions et modalités d'exécution retenues.

Art. 6. - Modalités de versement des contributions financières.

Sauf pour le cas du versement d'une avance de fonds initiale, les versements sont effectués sur acceptation par le conseil d'administration d'un décompte financier détaillé ainsi que d'un rapport d'exécution relatifs à la phase d'exécution concernée.

La convention à conclure conformément à l'article 5 peut stipuler que le décompte financier à produire doit être accompagné d'un rapport de vérification des comptes établi par un réviseur d'entreprise.

Pour le surplus, les modalités de versement sont fixées par conventions.

Art. 7. - Mention de l'intervention du Fonds.

L'intervention financière du Fonds doit faire l'objet d'une mention dans chaque publication relative à l'activité de recherche ayant fait l'objet d'une telle intervention financière.

Art. 8. - Arrêt de l'intervention du Fonds et restitution de la contribution financière versée.

1. La défaillance par rapport aux clauses d'exécution essentielles de la convention ainsi que le non-respect des principes élémentaires d'une gestion administrative et financière appropriée entraînera l'arrêt de l'intervention financière du Fonds, ainsi que le remboursement de la totalité ou d'une partie de la contribution accordée.
2. Les bénéficiaires d'une contribution financière sont tenus d'informer, par écrit et sans délai, le Fonds de tout élément susceptible de modifier sensiblement les modalités et conditions de réalisation des activités de R&D concernées respectivement de conduire les bénéficiaires à déroger à l'une ou l'autre clause de la convention. Le conseil d'administration peut décider de maintenir ou d'adapter la contribution financière à accorder, pour autant qu'il approuve les motifs invoqués.

Art. 9. - Contrôle de l'exécution des conventions.

1. Le secrétaire général suit la réalisation des activités et contrôle l'exécution des conventions conclues avec le Fonds. Il informe régulièrement le président du conseil d'administration de l'état d'avancement des activités et lui signale sans retard toutes irrégularités. Il transmet les mêmes informations régulièrement au président du conseil scientifique.

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2. Les bénéficiaires du Fonds prendront toutes dispositions nécessaires pour permettre les contrôles (dossiers, documents comptables) tant de la part du Fonds que de la part de tout autre organisme ou particulier dûment mandaté par le conseil d'administration. Ces contrôles peuvent s'exercer sur place et consister en un examen de la comptabilité et des pièces justificatives relatives aux activités de R&D motivant la contribution financière allouée. A cet effet, les pièces en question seront conservées pendant 5 ans après la réception du dernier versement.

Art. 10. - Exécution.

Notre Ministre de la Culture, de l'Enseignement Supérieur et de la Recherche est chargée de l'exécution du présent règlement, qui sera publié au Mémorial.

*La Ministre de la Culture,
de l'Enseignement Supérieur
et de la Recherche,*

Erna Hennicot-Schoepges

Palais de Luxembourg, le 27 juillet 2000.

Pour le Grand-Duc:
Son Lieutenant-Représentant

Henri
Grand-Duc héritier

Règlement grand-ducal du 8 août 2000 concernant l'affectation de fonctionnaires ou employés de l'Etat au Fonds national de la Recherche.

Nous JEAN, par la grâce de Dieu, Grand-Duc de Luxembourg, Duc de Nassau;

Vu la loi du 31 mai 1999 portant création d'un fonds national de la recherche dans le secteur public et notamment son article 9;

Vu l'article 2(1) de la loi du 12 juillet 1996 portant réforme du Conseil d'Etat et considérant qu'il y a urgence ;

Vu l'avis de la Chambre des fonctionnaires et employés publics;

Sur le rapport de Notre Ministre de la Culture, de l'Enseignement supérieur et de la Recherche, de Notre Ministre du Trésor et du Budget et de Notre Ministre de la Fonction publique et de la Réforme administrative et après délibération du Gouvernement en conseil;

Arrêtons:

Art. 1^{er}. Des fonctionnaires ou employés de l'Etat peuvent être affectés au Fonds national de la Recherche, ci-après appelé «le Fonds», en vue d'y effectuer des tâches relevant de la compétence du Fonds, selon les modalités suivantes:

- a) la candidature de l'intéressé, introduite par la voie hiérarchique, pour la réalisation de tâches relevant de la compétence du Fonds doit avoir été retenue par le conseil d'administration du Fonds conformément à la procédure prévue dans le règlement d'ordre intérieur du Fonds;
- b) le Fonds demande l'autorisation de l'affectation auprès du Ministre de qui dépend l'intéressé en spécifiant la durée de l'affectation et l'envergure de la tâche à effectuer;
- c) le Ministre concerné prend une décision quant à l'affectation demandée, le cas échéant sur avis du chef de l'administration dont le candidat fait partie;
- d) le Ministre peut accorder une réduction de tâche à l'intéressé dans son service d'origine pour l'affectation prévue;
- e) les décisions visées sous c) et d) ci-dessus sont transmises à l'intéressé pour accord;
- f) les décisions visées sous c) et d) ci-dessus sont notifiées au président du Fonds et au chef de l'administration dont relève le candidat; copies en sont transmises pour information aux ministres désignés à l'article 2 ci-dessus ainsi qu'à la Cour des Comptes;
- g) pour la durée de l'affectation, l'intéressé se trouve soumis à l'autorité hiérarchique du président du Fonds ou de son délégué pour la tâche qu'il y accomplit;
- h) l'intéressé ainsi affecté continue à toucher ses rémunérations de l'Etat, il conserve tous les droits découlant de sa nomination ou de son engagement auprès de l'Etat; n'est pas considérée comme diminution de traitement au sens du présent paragraphe la cessation d'emplois accessoires ni la cessation d'indemnités ou de frais de voyage, de bureau ou d'autres, lorsque la cause de ces indemnités vient à disparaître avec le nouvel emploi;
- i) le montant correspondant à la réduction de tâche accordée selon le paragraphe d) ci-dessus est débité de la dotation annuelle prévue au budget des recettes et des dépenses de l'Etat au profit du Fonds;
- j) le Fonds verse à l'intéressé la rémunération liée à la tâche effectuée, sauf si une réduction de tâche est accordée selon le paragraphe d) ci-dessus. Dans ce dernier cas, le Fonds verse à l'intéressé la différence entre la rémunération prévue pour la tâche effectuée et le montant débité en raison de la réduction de tâche accordée.

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Art. 2 Notre Ministre de la Culture, de l'Enseignement supérieur et de la Recherche, Notre Ministre du Trésor et du Budget et Notre Ministre de la Fonction publique et de la Réforme administrative sont chargés, chacun en ce qui le concerne, de l'exécution du présent règlement, qui sera publié au Mémorial.

*La Ministre de la Culture,
de l'Enseignement Supérieur
et de la Recherche,*

Erna Hennicot-Schoepges

Le Ministre du Trésor et du Budget,
Luc Frieden

*La Ministre de la Fonction Publique
et de la Réforme Administrative,*
Lydie Polfer

Genève, le 8 août 2000.

Pour le Grand-Duc:
Son Lieutenant-Représentant

Henri
Grand-Duc héritier

SUMMARY

The National Research Fund (FNR) was set up in 1999 with the objective of supporting and promoting research activities in Luxembourg. The FNR's main activities in order to increase the attractiveness of Luxembourg as a scientific site are the following: the strengthening of existing, respectively the creation of new competence, as well as the development of national and international synergies.

MEANS EMPLOYED MULTI-ANNUAL NATIONAL R&D PRIORITY PROGRAMMES:

Since 2000, several multi-annual research programmes have been launched in specific fields of interest to Luxembourg. The Board of Administration of the FNR ratifies these programmes, which have been developed with the help of the FNR's Scientific Council and scientific experts, before they are presented to the Government for financing.

In the last years, over EUR 74 million have thus been allocated to the Luxembourg research site through 143 FNR-funded research projects, whereas the criterion of scientific quality of the projects as well as the relevancy of the research content for research users are decisive. Further EUR 59 million are available for the 2009 and 2010 CORE Programme calls. Moreover, the internationality factor plays an important role.

HOW TO PARTICIPATE IN THESE PROGRAMMES?

For the new thematic CORE programme, which covers priority thematic domains for Luxembourg, and for the ATTRACT programme, calls for proposals are launched annually.

For the INTER programme, calls for proposals are launched regularly.




For the programmes SECOM, NANO, EAU, BIOSAN-PROVIE, VIVRE, TRASU, and SECAL, no further calls for project proposals are foreseen.

Further details on the open calls for research projects and evaluation procedures are available at www.fnr.lu.

TO WHOM ARE THE CALLS ADDRESSED?

Calls are addressed to public institutions, Luxembourg administrations and public establishments authorised to undertake R&D activities or technology transfer in their respective fields of activity.

THE FOLLOWING MULTI-ANNUAL RESEARCH PROGRAMMES
HAVE BEEN LAUNCHED SINCE 2000:

| DURATION | PROGRAMME TITLE | BUDGET (EUR) | |
|---------------------------------|---|--------------------|------------|
| ● 2008-2010 ● ● ● ● |  CORE Thematic Programme 2008 Call: | 22,000,000 | |
| | | 2009 Call: | 28,000,000 |
| | | 2010 Call: | 31,000,000 |
| ● 2006-2012 ● ● |  Attract Researchers to Luxembourg - Opportunities for Outstanding Young Researchers in Luxembourg (ATTRACT) | 6,000,000 | |
| ● 2006-2014 |  Promotion of International Cooperation (INTER) | 17,700,000 | |
| ● 2000-2008 ● ● | Security and Efficiency of New Practices in E-Commerce for All Socio-economic Actors (SECOM) | 7,500,000 | |
| ● 2000-2008 | New Materials and Nanotechnology (NANO) | 6,700,000 | |
| ● 2000-2007 ● | Sustainable Management of Water Resources (EAU) | 5,000,000 | |
| ● 2000-2011 ● | Health and Biotechnology & Extension Medical Aspects of Ageing (BIOSAN-PROVIE) | 10,500,000 | |
| ● 2002-2011 | Living Tomorrow in Luxembourg (VIVRE) | 12,000,000 | |
| ● 2003-2009 | Surface Treatment (TRASU) | 6,000,000 | |
| ● 2003-2010 | Food Safety (SECAL) | 7,500,000 | |
| TOTAL | | 159,900,000 | |

INTERNATIONAL COLLABORATION:

The establishment of strong collaborative work at European level has become a priority within recent years. The National Research Fund is also very active on the international level through its multi-annual programme INTER, and is a member of:

- the European Science Foundation (ESF),
- the European Heads of Research Councils (EUROHORCs),
- the European Research Consortium for Informatics and Mathematics (ERCIM),
- the European Cooperation in the Field of Scientific and Technical Research (COST),
- six European Research Area Networks: ERA-Age, ERA-SysBio, ERA-Net MATERA, ERA-Net MNT, ERA-Net HERA and ERA-Net NEURON,
- the International Council for Science (ICSU).

ACCOMPANYING MEASURES:

In addition to the support of research as such, the FNR subsidises accompanying measures. They are addressed to a larger public as a means to strengthen the general framework of scientific research in Luxembourg.

The accompanying measures are split into the following categories:

AM1 - PROMOTION OF SCIENTIFIC CULTURE

a: For Large Activities up to EUR 25,000

b: For Small Activities up to EUR 5,000

AM2 - TRAINING AND MOBILITY

a: Active Participation of Researchers in Scientific Conferences Abroad

b: Training for Researchers (including summer schools)

c: Mobility of Researchers

AM3 - ORGANISATION OF SCIENTIFIC CONFERENCES IN LUXEMBOURG

AM4 - SCIENTIFIC PUBLICATIONS INCLUDING PHD THESES

AM5 - NATIONAL RESEARCH COORDINATION

a: Thematic and Structural Research Platforms

b: Public Data Access for Research

AM6 - INTERNATIONAL COLLABORATION

a: Preparation of a European Union Research Project

FNR AWARDS for Outstanding Scientific Publications and for the Outstanding Promotion of Scientific Culture

HOW TO APPLY FOR THESE MEASURES?

For the measures AM1a, AM2c, AM3 and AM5, the submission deadlines are on 1 April and 1 October of each year. The submission deadline for the FNR Awards is on 1 April of each year. For the remaining measures, deadlines are fixed according to the beginning of the activities.

Further details on the application procedure for accompanying measures are available on www.fnr.lu.

TO WHOM ARE THE CALLS ADDRESSED?

These measures are addressed to a larger public:

- Public institutions or services authorised to undertake R&D activities,
- Associations,
- Individuals who pursue activities of scientific nature, including teachers and students.

AFR GRANT SCHEME – AIDES À LA FORMATION-RECHERCHE:

Since 1 October 2008, the FNR has been awarding the AFR grants (Aides à la Formation-Recherche) to support researchers in their doctoral and postdoctoral training. The AFR grant scheme replaces the well-established BFR (Bourses de Formation-Recherche) from the Luxembourg Ministry of Culture, Higher Education and Research.

The AFR grant scheme has no thematic limitations and is open to all researchers, regardless of their nationality, who are desirous to engage into research training in Luxembourg or abroad. However, the interest of the project in the context of Luxembourg R&D will be evaluated in the selection process.

The AFR scheme provides grants for PhD and postdoctoral research training projects in Luxembourg and abroad. The initial duration for PhD grants is limited to 3 years with a prolongation possibility of at maximum 1 year. Postdoctoral training is financed up to 2 years.

The main novelty of the AFR scheme is the promotion of work contracts between AFR beneficiaries and their host institutions. The beneficiaries are entitled to full access of social security coverage, including health and pension insurances, during the whole duration of their research training.

HOW TO APPLY FOR AN AFR GRANT?

For PhD grants, the submission deadlines are on 15 March, 15 June, 15 September and 15 December.

For postdoc grants, the submission deadlines are on 15 January, 15 April, 15 July and 15 October.

WHO IS ELIGIBLE?

At doctoral level, applicants must be holders of a University degree allowing them to enter into doctoral training.

At postdoc level, applicants must be holders of a PhD diploma. They can apply until up to 8 years after obtaining their PhD.

PROMOTION OF SCIENTIFIC CULTURE:

The FNR wishes to strengthen the links between science and society. In this regard, the FNR is focussing on the development of a scientific culture and thus approaching the population more actively.

The promotion of scientific culture is intended to stimulate the sensitivity for scientific issues among the Luxembourg population, but the main target group are young people, since they will be tomorrow's citizens and researchers. The objective is to create a profound understanding for the necessity of research as a guaranty for life quality and to fill youngsters with enthusiasm for scientific professions.

A major tool to achieve this goal is the ProScience group, which was set up by the FNR in 2007. It regroups all public research actors as well as the Ministry of Education and the Service National de la Jeunesse. The objectives of ProScience are to facilitate the organisation of promotion activities and to increase the research institutions' support of promoting scientific culture. Another key instrument is the Accompanying Measure AM1 for promoting scientific culture. The biennial Science Festival, for instance, is partly funded through this measure. This Festival embodies the FNR's philosophy by bringing the subjects of science and research closer to the public.

For further information, please visit the FNR's website www.fnr.lu or send an email to info@fnr.lu. The annual report may be downloaded from www.fnr.lu.

STRATEGY OF THE FNR

The FNR was set up by the law of 31 May 1999. Its initial structure reflects the national R&D policy and the institutional context of that era.

Since then, the context has significantly changed. The Foresight Study, the OECD report on the implementation of the innovation policy in Luxembourg as well as the Performance Contracts signed with the Government and the Luxembourg public research actors were for the FNR an opportunity to rethink its position and strategy.

The FNR intends to invest in human resources, in institutions and in knowledge. Hence, the FNR's strategy pursues three main objectives:

1. SUPPORTING RESEARCHERS TO BUILD UP SCIENTIFIC QUALITY AND EXCELLENCE

Excellent researchers are the cornerstone of a productive research landscape. The FNR wants to foster scientific quality by:

- implementing a research programme which covers the national research priorities through streamlined and transparent procedures based on a stringent peer-review system, with scientific quality being the prime criterion: the CORE programme;
- attracting outstanding researchers to Luxembourg via the ATTRACT programme;
- improving young researchers' training conditions and enhance the career development of researchers through the reformed AFR grants.

The priority actions of the FNR support the research institutions and allow them to fulfil their missions and objectives. In the coming years, the FNR will continue working on the fostering of the scientific quality of all activities financed in the framework of the priority actions. With regard to the maximisation of their socio-economic impact, the promotion of scientific quality is of crucial importance in the national priority domains selected by the Government.

2. CONTRIBUTING TO A FAVOURABLE RESEARCH ENVIRONMENT


The FNR aims to improve Luxembourg's research environment and institutional framework through:

- developing a strategic orientation for the INTER programme, thus providing researchers with a wide range of opportunities for international collaborations;
- encouraging the mobility of the researchers;
- improving existing and developing new Accompanying Measures;
- improving networking among researchers;
- assuring the valorisation of research results.

In the medium term, the national R&D policy will focus on a sustainable development of human resources. Actions and initiatives will take the particular framework of research in Luxembourg into account, as e.g. the challenges related to the size of the country, the strong mobility of the researchers to foreign countries as well as the labour legislation. The FNR will contribute to the national R&D policy by establishing an efficient support of the human resources in the research domain and by allocating financial means in order to be able to confront the structural deficits on the national level. A favourable research environment depends highly on efficient support for research collaboration at international and national level. It is essential to build scientific platforms where all actors and users of a research domain are brought together.

3. PROMOTING SCIENTIFIC CULTURE

The FNR also wishes to strengthen the links between science and society. The promotion of scientific culture is intended to stimulate the sensitivity for scientific issues among the Luxembourg population, but the main target group are young people, since they will be tomorrow's citizens and researchers. The objective is to create a profound understanding for the necessity of research as a guaranty for life quality and to fill youngsters with enthusiasm for scientific professions.



A major tool to achieve this goal is the ProScience group, which was set up by the FNR in 2007. It regroups all public research actors as well as the Ministry of Education and the Service National de la Jeunesse. The goals of ProScience are to facilitate the organisation of promotion activities and to increase the research institutions' support of promoting scientific culture. Another key instrument is the Accompanying Measure AM1 for promoting scientific culture. The biennial Science Festival and the Researchers' Night, for instance, are partly funded through this measure.

Additionally, the participative and open approach launched through the Foresight Exercise is a way forward to start a dialogue between the actors in and the users of scientific research.

At the same time and in accordance with its strategic objectives, the FNR aspires to further intensify the collaboration and coordination between all the stakeholders in the innovation system.

While developing, implementing and assessing its policy tools, the FNR aims to be transparent, efficient, professional and accountable. For its thematic and structural programmes, the FNR pays attention to use a best-practice evaluation system with the assistance of independent international experts (peer review).

The FNR's strategy was also reflected in the new Performance Contract between the Government and the FNR, which came to effect on 1 January 2008. With this Contract, the FNR commits itself to developing and implementing priority actions and instruments in order to attain the fixed objectives for the time period 2008-2010. Additionally, the FNR agrees on performance indicators translating the strategic objectives for this period, such as the number of Accompanying Measures being allocated, the number of ProScience initiatives, the co-funding of the AFR grant scheme by the European Commission, the number of theses written by AFR beneficiaries, or the implementation of impact studies for the finished projects, e.g. the final evaluation of the EAU programme in 2008.

The Government provides a financial contribution of EUR 90,860,000 to the FNR (exercise 2008: EUR 22,360,000; exercise 2009: EUR 28,200,000; exercise 2010: EUR 40,300,000). The FNR shall dedicate its efforts particularly to the continuous and sustainable development of the national public research system.

For more information about the Performance Contract as well as the FNR's 2008 Report to the Government concerning the fulfillment of the performance indicators, please refer to our website www.fnr.lu.



INSTITUT KIMIA MALAYSIA

MALAYSIAN INSTITUTE OF CHEMISTRY

(Inaugurated on 8 April 1967, incorporated under Chemists Act 1975 on 1 November 1977)

127B, JALAN AMINUDDIN BAKI, TAMAN TUN DR. ISMAIL 60000 KUALA LUMPUR.

Fax : 03 – 77289909 Tel : 77283272 (hunting line)

WEBSITE: <http://www.ikm.org.my> EMAIL: ikmmy@pc.jaring.my

President: Datuk Dr Soon Ting Kueh

June 18, 2008

Prof Jung-II Jin

President

International Union of Pure and Applied Chemistry (IUPAC)

Dear Prof Jin,

**INSTITUT KIMIA MALAYSIA (IKM) – Application as
National Adhering Organization (NAO) of IUPAC**

I am pleased to inform you that the Council of Institut Kimia Malaysian (IKM) has decided to apply as a National Adhering Organization (NAO) of the International Union of Pure and Applied Chemistry (IUPAC) at the coming IUPAC General Assembly in Glasgow in August 2009. Institut Kimia Malaysia or IKM is the national organization of chemists in Malaysia. IKM was registered under the Societies Act 1966 on October 13, 1967 and subsequently incorporated as a professional body under the Chemists Act 1975 on November 01, 1977. I am attaching the following documents for your reference:

- Chemists Act 1975
- Chemists Act 1975 By-Laws
- A brochure on Institut Kimia Malaysia

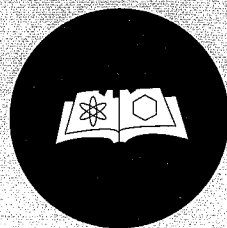
Please advise us on the next course of action.

Thank you and with best wishes.

Yours sincerely,

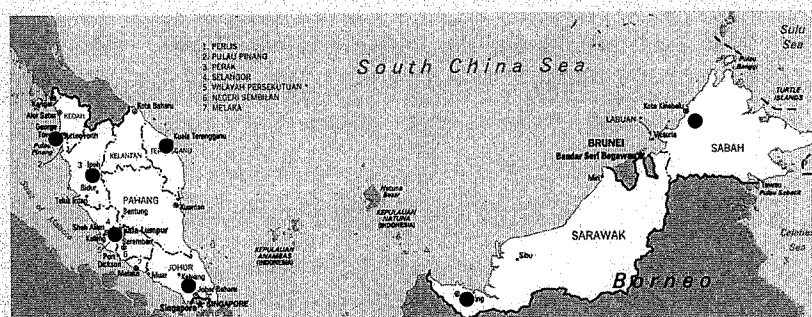
Datuk Dr Soon Ting Kueh

President, Institut Kimia Malaysia



INSTITUT KIMIA MALAYSIA

In pursuit of excellence in chemistry



● IKM Headquarter and Branches

Institut Kimia Malaysia

127B, Jalan Aminuddin Baki

Taman Tun Dr Ismail

60000 Kuala Lumpur, MALAYSIA

Tel: 6 03 7728 3272 Fax: 6 03 7728 9909

Email: ikmmy@tm.net.my

<http://www.ikm.org.my>

INTRODUCTION

Institut Kimia Malaysia (IKM), or the Malaysian Institute of Chemistry, was registered under the Societies Act 1966 on 13th October 1967 with 27 Founding Members. It was subsequently incorporated as a professional body under the Chemists Act 1975 on 22nd May 1975.

The Institute is a professional organisation established to regulate and represent the profession of chemistry in Malaysia. IKM has grown in tandem with the rapid development of the country. With a membership of 2,398 as at 1st January 2008, IKM enjoys a prominent place among the professional scientific organisations in Malaysia. The Institute is also playing a leading role in the development of chemistry in Asia.

VISION OF IKM

The Vision of the Institute is "In pursuit of excellence in chemistry".

MISSION OF THE INSTITUTE

The Institute regulates the practice of chemistry in Malaysia, represents the profession of chemistry, and promote public understanding and appreciation of chemistry. IKM also plays a key role in the socio-economic development of Malaysia, including practising sustainable development of our natural resources, and, preserving and conserving our natural environment and resources for our future generations.

CHEMISTS ACT 1975

The Chemists Act 1975 gave recognition to the professional practice of chemistry in Malaysia. IKM was incorporated under the Act to regulate and promote the practice of the profession of chemistry in Malaysia.

POWER AND PRIVILEGES

Under the chemists Act 1975, only registered chemists of Institut Kimia Malaysia (IKM) shall enjoy the following power and privileges

- (a) practice or hold himself out as a registered chemist or as a person of any other like description;
- (b) advertise by any means or in any manner as being engaged in the practice as a registered chemist;
- (c) adopt, use or exhibit the term "registered chemist" or its equivalent in any other language or any other term of like description in such circumstances as to indicate or to be likely to lead persons to refer that he is a registered chemist; and
- (d) sign or certify any report or certificate of analysis intended for the public.

FUNCTIONS OF IKM

The Functions of the Institute are as follows:

- (a) To determine the qualifications of persons for admission as members
- (b) To provide for the training, education and examination by the Institute of persons intending to be members and of members practising or intending to practise the profession of chemistry in Malaysia
- (c) To regulate the practice, by members, of the profession of chemistry in Malaysia
- (d) To promote the interest of the profession of chemistry in Malaysia
- (e) To render such pecuniary or other assistance to members or their dependants as it thinks fit with a view to protecting or promoting their welfare

COUNCIL OF IKM

The Institute is managed by a 13-member Council elected from its membership with the Director General of Chemistry as the Registrar. The Principal Office Bearers of the IKM Council for 2008/09 are as follows:

President:

Datuk Dr Soon Ting Kueh

Vice President:

Dato' Chang Eng Thuan

Registrar:

Director General of Chemistry

Honorary Secretary:

Prof Datin Dr Zuriati Zakaria

Honorary Treasurer:

Mr Chee Ong Koh

Honorary Asst Secretary:

Prof Dr Lee Yook Heng

Honorary Asst Treasurer:

Mr Steven Tea Hing San

Council Members:

Prof Emeritus Dr Ng Soon

ACP Dr Yew Chong Hooi

Mr Chang Hon Fong

Dr Ho Chee Cheong

Mr Hoong Seng Hong

Dr Lee Chnoong Kheng

Dato' Dr Ong Eng Long

MEMBERSHIP OF IKM

Membership of the Institute is open to all persons over 21 years old with a recognised pass or honours degree in chemistry or equivalent academic qualification in chemistry or a specialised discipline associated with chemistry and the requisite practical experience.

Membership is of three grades, namely Fellowship, Associateship and Licentiateship. Fellows, Associates and Licentiates are entitled to use the initials FMIC, AMIC or LMIC respectively after their names.

ACTIVITIES OF THE INSTITUTE

The Institute carries out the whole range of professional, educational, social and promotional activities, including the following:

- Membership Examinations
- Chemistry Conferences including the Malaysian Chemical Conference (MCC), Regional Symposium on Total Laboratory Management (QSEL), Seminars and Workshops
- Professional Courses and Continuing Education Programmes
- Chemistry Publications
- Activities on Promoting Public Understanding and Appreciation of Chemistry including the Chemistry and Technology Information Series (CATIS) and Chemistry Festivals
- Malaysian National Chemistry Quiz (K3M)
- Social Functions including the annual Malam Kimia

The Institute also regularly holds regional and international meetings.

NATIONAL, REGIONAL AND INTERNATIONAL COOPERATION

Under the Chemists Act 1975, the Institute is under the purview of the Ministry of Science, Technology and Innovation (MOSTI).

The Institute is a Founding Member of the following national umbrella organisations:

- Confederation of Scientific and Technological Associations in Malaysia (COSTAM)
- Malaysian Professional Centre (Balai Ikhtisas Malaysia or BIM)

The Institute is also a Founding Member of the Federation of Asian Chemical Societies (FACS) and takes an active part in FACS activities. The Institute hosted the 12th Asian Chemical Congress (12 ACC) in Kuala Lumpur from 23rd – 25th August 2007.

The Institute will be organising the **10th Asian Conference on Analytical Sciences (Asianalysis X)** in Kuala Lumpur, Malaysia from 11th – 13th August 2009.

The Institute is an associated member of the International Union of Pure and Applied Chemistry (IUPAC) and takes an active part in a number of IUPAC activities.

IKM PUBLICATIONS

The Institute publishes the following:

- **Malaysian Journal of Chemistry** (a semi-annual refereed journal of IKM)
- **Berita IKM – Chemistry in Malaysia** (a quarterly publication for members)
- **Kimia Kini** (a semi-annual publication of the Chemistry Education Section)

IKM AWARDS

The Institute presents a number of annual awards to recognise professional contributions, academic excellence and outstanding meritorious service within its membership and profession. Among these awards are the following:

- IKM Gold Medal for Distinctive Contribution to the Profession of Chemistry in Malaysia
- IKM Gold Medal for Excellence in Chemical Research and Development
- Tan Sri Datuk Amar Stephen K T Yong Award for significant contribution to development in the industrial sector in Malaysia
- Tan Sri Dato' Sri Law Hieng Ding Award for significant contribution to chemistry education and/or public understanding of chemistry
- Tan Sri Ong Kee Hui Postgraduate Chemistry Medal
- Graduate Chemistry Medals
- IKM Citation Awards for Meritorious Service

IKM HEADQUARTER AND BRANCHES

The Headquarter of Institut Kimia Malaysia is located in Kuala Lumpur. The Institute also has six Branches as follows:

- Sarawak Branch (located in Kuching)
- Northern Branch (located in Penang)
- Southern Branch (located in Johor Bahru)
- Sabah & FT Labuan Branch (located in Kota Kinabalu)
- Perak Branch (located in Ipoh)
- Terengganu Branch (located in Kuala Terengganu)

The Institute will continue to play a key role in the socio-economic development of Malaysia. IKM also plays a major role in safeguarding the quality of our environment and ensuring the sustainable management of our natural resources.

**ACADEMIA DE ȘTIINȚE
A MOLDOVEI**

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**ACADEMY OF SCIENCES OF
MOLDOVA**

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05.12.08 nr. 2566-05/10

**To: Professor Jung-II Jin
President of IUPAC**

Request from Republic of Moldova to be the member of IUPAC

Dear professor Jung-II Jin,

Academy of Science of Moldova is responsible for the development of scientific research and its application in all fields of basic science disciplines.

Following development of our international cooperation with the different international Non Governmental Organizations (NGO's) we would like to become full member of the International Union of Pure and Applied Chemistry (IUPAC).

We hope that IUPAC General Assembly in August 2009 will approve our request and from 2010 we shall be able to be recognized, as a full IUPAC member. We hope to receive the reply from you soon.

We look forward to a fruitful collaboration.

Sincerely,

President of Academy of Sciences of Moldova

Academician

Gheorghe DUCA

Dear Prof. Jung-II Jin,
President
International Union of Pure and Applied Chemistry (IUPAC)

Due to the superb achievements of IUPAC and its internationally reputation for promoting the advancement of chemistry science world wide and in order for us in the Saudi Chemical Society (SCS) to benefit from the rich experiences and excellent activities carried by IUPAC for the development of chemistry, we here by applying for the membership of IUPAC (National Adhering Organization Status).

Saudi Chemical Society is a non profit chemical society dedicate for the advancement of chemical knowledge in the Kingdom of Saudi Arabia through its various activities such as conferences, published periodical journals, educational supports, environmental issues, promotion of chemistry to industry and public ... etc.

Saudi Chemical Society if officially associated to the ministry of higher education in Saudi Arabia, hence, our society constitution is adopted from the executive rules for scientific societies in Saudi Arabia (please see attached file).

Also attached, a brief description of the goals and activities of Saudi Chemical Society and a letter from King Saud University to approve that the Saudi Chemical Society is the only authorized scientific society in Saudi Arabia in the field of pure chemistry.

No doubt, your cooperation in this matter is highly appreciated.

Best regards,

Dr Ahmad H. Alghamdi
President of Saudi Chemical Society

Dept. Chemistry
King Saud University
POBox 2455
Riyadh 11451
Saudi Arabia

Goals of the Saudi Chemical Society (in brief)

- 1- Development of the scientific thought and knowledge in the chemical science.
- 2- Facilitate the exchange of chemical knowledge among the chemical community in Saudi Arabia.
- 3- Provide the scientific advisory in industrial chemistry, chemical education, environmental prevention to governmental, commercial sector, student and individuals interested in chemical knowledge.

Activities of the Saudi Chemical Society

1- Conferences

- 1-1 The Saudi Chemical Society held the 2007 National Chemical Conference in Mecca, which lasted three days, with around 500 participants, many of them from abroad.
- 1-2 The Saudi Chemical Society hosted the meeting of the 26th session of the Union of Arab Chemists (2007), with the participation of various chemical societies and unions from around ten different Arab countries.
- 1-3 The Saudi Chemical Society, shared with the Department of Chemistry at King Saud University, organized (The Conference of Chemistry and Industry 2006, A Look to the Future) in Riyadh .
- 1-4 The Saudi Chemical Society shared in the organization of 2005 petrotech (the fifth Middle East Conference for petrochemicals and refining, held in Manama, the capital of the Kingdom of Bahrain.

2- Symposiums

- 2-1 The Western Region Branch of Saudi Chemical Society organized the First Saudi Scientific Meeting on Paints 2006.
- 2-2 The Women Branch of Saudi Chemical Society organized a specialized symposium on Chemical Additives on Foods and Cosmetics at King Abdul Aziz Historical Center in Riyadh (2006). The Western Region Branch of Saudi Chemical Society organized a symposium on Waste Treatment and Recycling: The Effects on the Environment 2005

3- Publications of the Society

- 3-1 Journal of Saudi Chemical Society (jscs), a refereed journal.
- 3-2 The Chemistry Magazine.
- 3-3 Chemical Education Magazine
- 3-4 Arabian Journal of Chemistry, a refereed journal
- 3-4 The Arabian Chemist Magazine

4- Training Courses

- 4-1 Safety at the Chemical Laboratories.
- 4-2 Skills of Scientific Research
- 4-3 An Introduction to the Theory and Analysis of Electrochemical Hindrance.
- 4-4 Atomic Absorption: - Foundations and Application
- 4-5 Interpretation of the Spectra of Nuclear Magnetic Resonance (NMR):
- 4-6 The Skills of Improving Chemical Demonstrations at Secondary Schools
- 4-7 A Concise Course on Corrosion.

The Executive Rules for Existing Scientific Societies at Saudi Arabia

Article 1 : Establishment of Scientific Societies

The Saudi universities are entitled to establish Scientific Societies working under their direct supervision, according to the following procedures:

- 1- A recommendation should be issued by the Scientific Counsel for the establishment of a Scientific Society.
- 2- Based upon such a recommendation, a Decree should be issued by the University Counsel to this effect.
- 3- The Scientific Counsel forms a Temporary Constituent Committee of five members to take care of all jurisdictions and to follow all the procedures.
- 4- The Constituent Committee members choose one member from among them to be Head of the Committee.
- 5- after accepting new members in the Society, the Constituent Committee from requests the General Assembly to hold a session.
- 6- The work of the Constituent Committee ends directly after the first session of the General Assembly.
- 7- The Constituent Committee submits a report about its whole work to the General Assembly
- 8- The General Assembly chooses the members of the Board of Directors.

Article 2: Establishing Branches to the Scientific Society.

The Scientific Societies are entitled to establish Branches thereof according to the following procedures:

- 1- The Society's Board of Directors recommends the establishment of one or more Branch to the Society.
- 2- The General Assembly approves the recommendation to establish the Branches.
- 3- The Head of the Society submits the approval of the General Assembly on the establishment of the Branches to the University President. However, this establishment of the Branch is not considered entering into force until the receipt of the approval from the University.

Article 3: Jurisdictions of the Branches:

The Branch has no right to take decisions or conclude agreements, but may submit recommendations about them to the Board of Directors for approval if they are within the jurisdictions given to the Board according to Article 14 of the rules regulating the Scientific Societies at the Saudi Universities. However, if they are not within the Jurisdictions of the Society, it will submit them to the authorized person for approval, according to the rules regulating the Scientific Societies at the Saudi Universities.

Article 4 : Managing the Branches

- 1- The Board of Directors nominates a person as manager of the Branch to follow up its activities.
- 2- The Branch works out a quarterly report about its activities to be submitted to the Board of Directors.
- 3- The Branch works out a yearly report about its activities which to be submitted to the Board of Directors at least a month before the session of the General Assembly.

Article 5 : Conditions of the Active Membership:

- 1- The applicant for active membership should hold at least a bachelor degree or its equivalent, in the same specialization as the Society.
- 2- Applicants for active membership or affiliated membership should submit their applications to join the Society.
- 3- To pay regular annual contribution fees.
- 4- To be of good conduct and behavior, and not to practice any work that contradicts the Society benefit or jurisdiction. Furthermore, he should not have been sentenced for any crime that affects honor or esteem.
- 5- Whatever the Board of Directors finds suitable as additional conditions.
- 6- A decision of his acceptance as member should be issued by the Board of Directors.

The applicant whose membership was refused by the Board of Directors has the right to appeal to the General Assembly. If accepted by the General Assembly, he would be considered as a member in the Society after paying the contribution fee.

Article 6 : Conditions for Honorary Membership:

- 1- The Honorary Membership is granted by decision of the General Assembly.
- 2- Granting the Honorary Membership is conditioned by the fact that the person to be granted this kind of membership should have contributed to the Society's fields of interest, or have supported the Society, whether financially or morally.
- 3- The Honorary Member is exempted from paying the annual contribution fee.
- 4- The Honorary member is entitled to attend the General Assembly sessions, or the sessions of its different committees. Furthermore, he is entitled to participate in their discussions, but not to vote.

Article 7 : Affiliated Membership

- 1- University students have the right to join the Scientific Society, provided that the target degree of the applicant should not be less than the Bachelor Degree, or its equivalent, and should be within the specific field of the Society.
- 2- Workers and others interested in the Society field, not holding the required qualification for active membership, have the right to apply to join the Scientific Society.
- 3- The affiliated member is exempted from paying 50% of the annual contribution fee.

- 4- The affiliated member is entitled to attend the General Assembly sessions, or the sessions of its different committees. Furthermore, he is entitled to participate in their discussions, but not to vote.
- 5- Artificial Personalities (like Institutions and Companies), have the right to apply to join the Scientific Society if they meet the membership conditions, in addition to their financial support to the Society , or their contribution to its fields of interest. Representative of the Artificial Personality is entitled to attend the General Assembly sessions, or the sessions of its different committees. Furthermore, he is entitled to participate in their discussions, but not to vote.
- 6- The Artificial Personalities, who have gained membership of the Society by affiliation, have no right to benefit personally from the Society's services, nor have they the right to be candidates for membership of the Board of Directors or other committees, unless they are personal active members in the Society.

Article 8 : Duties of the Members :

- 1- After their acceptance as members, to sign in the register book of membership which includes the names and addresses of the members.
- 2- To fulfill all obligations, and do all duties stipulated in the rules regulating the Scientific Societies and their executive rules, as well as the internal rules specific to each Society.
- 3- To pay his contribution fees.
- 4- To notify the Board of Directors, by writing, about any changes in his address as fixed in the register book of membership, with no responsibility lying on the Society. Moreover, the member shall have no right to object to any decision with the excuse of not having been notified, if his address, given to the Society, is not correct.

Article :9 : Termination of the Membership

Membership in the Society terminates in the following conditions :

- 1- Withdrawal or death of the member.
- 2- Non payment of the annual contribution fees, a year after their becoming due.
- 3- In case a legislative or administrative decree is issued against the member, for lack of honesty and faithfulness.
- 4- If one of the membership conditions is missing.
- 5- If the member committed an act or activity that bring damage to the Society, whether materially or morally. In this case the membership is dropped only after the approval of the Society's Board of Directors.

Article 10: Regaining of the Membership

The member may regain membership by a decision of the Society's Board of Directors, based on the following two conditions :

- 1- If the member applies for regaining his membership.
- 2- Removal of the reasons which caused the drop of former membership.

Article 11 : Formation of the General Assembly , and its Meetings:

All active members form together the General Assembly, which is considered as the higher authority of the Scientific Society, and whose decisions comprise all members, including absent members, non attending members, rejecting members, and members of the Board of Directors.

The General Assembly hold its meetings as follows :

1- Normal Meetings :

- a- The General Assembly holds its normal meeting once a year, called by the Head of Board of directors.
- b- The meeting is not to be considered as legally correct, unless attended by majority of the members.
- c- If the majority of the members do not attend the meeting, the General Assembly is entitled to hold another meeting two weeks later, which shall be considered as legally correct, with whatever attendants.
- d- Deputizing someone to attend the meeting of the General Assembly is not accepted, as every member should attend the meetings of the General Assembly in person, and as every member has one vote. Voting through correspondence, phone or other electronic devices is not acceptable.

2- Exceptional Meetings

Exceptional Meetings are held, in case of necessity, based on a request submitted by the Board of Directors, or the request of one fifth of the General Assembly members.

The meeting is to be considered as legally correct with whatever attendants, its schedule to be specific to the urgent need that necessitated its call.

3- How to call the General Assembly ?

The calls for a meeting of the General Assembly by the Head of the Board of Director's should be sent to all members, according to their positions, in writing attached with the schedule, and subjects to be discussed and place, date and hour of the meeting, in such a means that will ensure the members' receipt of the call.

4- Date of the call:

- a- The call for the General Assembly meeting should be sent at least one month before the meeting. Both place and time of the meeting should be carefully chosen.
- b- If the reason behind the General Assembly meeting is to choose the next members of the Board of Directors, the present Board of Directors should start its calling procedures for the General Assembly meeting at least three months before termination of its period. The first General Assembly meeting for choosing members of the Board of Directors should be at least three weeks before end of the period of the present Board of Directors, so that the second meeting could be held before end of this period, should the quorum be incomplete for the first meeting.

Article 12 : Decision Making :

Decisions and recommendations of the General Assembly are made by the majority of votes. If, however, the votes are equal, the side where the Head of

session is voting is to be preferred. Voting is made either by hand rising signal, or secretly, if requested by the majority of the presence.

Article 13 : Registration of Attendance:

A special register book should be kept, containing names of the members, who attend the meeting of the General Assembly, as well as their membership numbers and signatures. This register book is to be signed by members of the Board of Directors.

The Board of Directors is entitled to place penalties against members who do not attend three consecutive meetings of the General Assembly without showing an excuse that can be accepted by the Board of Directors. Those penalties should be approved by the General Assembly to become valid.

Article 14 : Chairman of the General Assembly:

The head of Board of Directors, or his deputy, take the responsibility as chairman of the General Assembly. When both are absent, a head of the session is elected from the attending members.

Article 15 : Schedule of the General Assembly:

The General Assembly discusses only matters in its schedule which lie within its jurisdiction, including the following :

- 1- To discuss the report prepared by the Board of Directors about the Society's works during the past year.
- 2- To discuss and negotiate the work plan which the Board of Directors proposes for the next year, approving or amending it.
- 3- To elect members of the Board of Directors, when the existing Board has completed its period.
- 4- To issue rules regulating the internal work of the Board of Directors, when existing.
- 5- To appoint an auditor, indicating his fees.
- 6- To discuss the report of the auditor, and to approve the budget and the final statements of account.
- 7- To make decisions about claims of injustice, objections, and appeals submitted against any decision made by the Board of Directors.
- 8- Other subjects mentioned in its schedule.

Article 16 : How to Hold a Meeting of the General Assembly ?

At the start of the hour appointed for the meeting, the chairman checks the number of attendants. If they have reached the legal quorum, he announces the start of the meeting and opens the session.

If the number of attendants do not reach the legal quorum, other minor matters can be discussed relating to the Board of Directors, such as the regulating sheets, rights of the members, and the arrangements by which the accounts are kept at the Society, as well as other matters.

If after an hour from the start of the appointed time for the meeting no member has shown up to complete the quorum, the chairman announces the postponement

of the session, due to the incomplete legal quorum. Furthermore, he urges the attendants to contact the rest of the members for attending the next meeting which should be appointed, as stipulated in Article 8 of the Rules regulating the Scientific Societies at the Saudi Universities.

Article 17 : How to Elect the Society's Members of the Board of Directors ?

The right to the Society's membership, as well as the right of candidature to the Board of Directors lasts as a guaranteed right to every active member, till the time appointed for the meeting of the General Assembly.

Following are the election arrangements :

- 1- The Society's secretariat prepares a list of the members with the following information :
 - a- Names and addresses of the active members who had paid the contribution fees till the year of election.
 - b- The working place to which the active member belongs.
 - c- To indicate whether the active member belonging to the university is lent or delegated to work outside the university, or not.
- 2- The Society's secretariat submits this list to the Board of Directors for approval.
- 3- When the Board of Directors has checked the correctness of the list of electors, it calls the General Assembly for meeting, informing the active members who had paid their contribution fees of their right for election and candidature for membership of the Board of Directors> This should be done at least a month before the date of the General Assembly meeting specified for electing members of the Board of Directors.
- 4- The Society's Secretariat notifies the university about the date of election, asking it to send its representatives for the follow up.
- 5- The Board of Directors prepares election cards for all electors, with a list of them, both to be signed by the members of the Board at least five days before the meeting of the Society.
- 6- The General Assembly forms an election committee, and ensures the application of the rules regulating the Scientific Societies at the Saudi Universities with regard to the election.
- 7- The Election Committee prepares an election box, ensuring its emptiness, then closes it in the presence of electors during the meeting of the General Assembly. The election committee goes on doing the following in this consequence:
 - a- Checks the identity of the elector, signing the list prepared by the Board of Directors, mentioned in point (5) above.
 - b- Submits the election cards bearing names of the candidates for membership of the Board.
- 8- Each elector has one vote, which he should give in person, having no right to deputize someone to vote for him.
- 9- The elector puts signs beside the names he had chosen from the list of candidates, then puts the election card in the election box.
- 10- If the elector needed assistance for election, he can ask it from any member present at the General Assembly.
- 11- The General Assembly chooses at least two of its members for separating the votes. One or more university representative may join them in separating.

- The team prepares the election data, signs it, then a proceedings is prepared, showing results of the election , to be submitted to the election committee.
- 12- The election committee announces results of the election, showing how many votes each candidate has gained, starting from the highest number of votes. The election committee prepares a proceedings, showing result of the election and the number of votes that each candidate has gained, in addition to the following information :
- a. The working place to which each candidate belongs.
 - b. To indicate whether the candidate belonging to the university is lent or delegated to work outside the university, or not.
 - c. To indicate whether the meeting of the General Assembly is the first meeting with complete quorum , or the second meeting , as the quorum was incomplete in the first one. If the meeting is the first, the number of attendants should be mentioned , according to Article 8 of the Rules regulating the Scientific Societies.
- 13- Three candidates, belonging to the University, gaining highest votes among the candidates belonging to the university, are taken first as members of the Board of Directors. The rest candidates belonging to the university enter among the other candidates for deciding the Six remaining members with highest votes for members of the Board of Directors. If the votes of more than one candidates are equal, with no possibility of taking them all in the Board, then the election committee makes a lottery between the candidates with equal votes, in their presence, unless some of them waive their rights..
- 14- The election committee approves the proceedings, through signing by all committee members. If an error appears to have happened in counting or separation, after approving the results by the General Assembly, the results remain as approved, and the matter is brought in front of the first meeting of the General Assembly for decision.

Article 18 : Cases Where Election Cards may be Disregarded

The election cards may be disregarded in the following cases :

- 1- If the elector elects more than the required candidates.
- 2- If the elector writes his name and his Society number on the card.
- 3- If the committee has proof of a card misuse. The decision to accept, or disregard the card, shall be final.

Article 19 : Formation of the Board of Directors:

- 1- The Society is managed by a Board of Directors consisting of nine members elected by the General Assembly. The elected Board of Directors holds its first meeting directly after the General Assembly meeting in order to choose its Chairman, Deputy Chairman, Secretary and Treasurer.
- 2- It is conditioned that the members of the Board of Director should :
 - a- Be not less than nine members in number.
 - b- One third of them, at least, should belong to the university which had established the Society.
 - c- Those members belonging to the university should be working there, not lent or delegated to work outside.

d- Chairman of the Board of Directors should belong to the University which had established the Society.

3- Time period for members of the Board of Directors :

Membership in the Board of Directors starts from the date of the General Assembly meeting during which the members had been elected and lasts for a period of three years, renewable once only.

4- Members of the Board of Directors choose, through secret voting, a member from them to be their Chairman, for a period of three years, renewable once only.

Article 20 : Absence and membership vacancy:

1- If a member of the Board of Directors absents himself for three consecutive meetings of the Board, without showing an acceptable excuse, the Board of Directors is entitled to consider him as resigning. This member has the right to plea injustice with regard to the decision made by the Board of Directors in front of the first General Assembly meeting. The decision of the General Assembly is to be considered as final for him.

2-When the seat of any member in the Board of Directors, who has been chosen by the General Assembly becomes vacant for any reason, the Board chooses a replacing member, provided that this member had gained the highest votes in the General Assembly elections during which the members of the Board of Directors had been chosen.

However, if the vacant position is that of the Chairman, the Board of Directors chooses a chairman from the members belonging to the University which had established the Society. If, due to the membership vacancy, the number of members belonging to the University in the Board of Directors decreases, the replacing member should be the one with the highest votes during the General Assembly elections which had chosen the Board of Directors, belonging to the University which had established the Society.

Article 21 : Jurisdiction of the Chairman of the Board of Directors

The Chairman of the Board of Directors is to be considered as representing the Society in front of others, acting on its behalf through correspondence with official and unofficial entities in the Kingdom of Saudi Arabia and outside according to regular arrangements in force. Furthermore, he is also Chairman of the General Assembly.

Article 22 : Meetings of the Board of Directors :

1- Normal Meetings :

The Board of Directors holds a quarterly normal meeting . This meeting is to be considered as legally correct when attended by the majority of members. The Chairman, or vice chairman, call for such a meeting.

2- Exceptional Meetings :

It is legally accepted to call the Board of Directors for an exceptional meeting, upon the request of :

- a- Half its members
- b- One fifth of the General Assembly members.
- c- Chairman of the Board of Directors.

- d- In such a case, only the subjects for which the Board was called are to be discussed.

Article 23 : Decisions of the Board of Directors :

Decisions and recommendations of the Board of Directors are made by the majority of votes. If, however, the votes are equal, the side where the Head of Board is voting is to be preferred. When the decisions are made by the majority of voters, the members rejecting the decisions should sign the proceedings, entering with the majority. However, they are entitled to reject signature only after having written their rejection.

Article 24 : How to Call the Board for Meeting ?

If there is no specific and appointed date for the meetings of the Board of Directors, the call for such meetings should be sent at least two days before the meeting, attached with the schedule. In cases of urgency, this time period may be shortened to any limit. Calling the members for meeting can be made by phone, telegram or any other means.

Article 25 : Jurisdictions of Vice Chairman :

When absenting himself, the Chairman of the Board of Directors deputizes his vice chairman, who enjoys his jurisdictions, unless he had already authorized a certain member of the Board with some or all his jurisdictions.

Article 26 : Budget of the Society :

- 1-The Society accountant prepares its annual budget containing expected revenues, and potential expenditures, and submits it to the Board of Directors, who, after approval, presents to the General Assembly for Approval. Furthermore, the accountant controls the Society's accounts and budget once at the end of the fiscal year, submitting his report to the Board of Directors, to be seen, together with the final statement of account , by the General Assembly.
- 2-The General Assembly confirms the annual budget of the Society, and approves its final statement of account.
- 3-The fiscal year for the Society starts on the first day of Rajab every year, and ends at the end of Jamada II of the next year.
- 4-The same methods used for controlling state-owned institutes are followed for controlling the Society's accounts.
- 5-Both the Treasurer and the Secretary are considered responsible in front of the Board of Directors with regard to financial works and disposals.



สมาคมเคมี

Chemical Society of Thailand

สถานที่ติดต่อ: ภาควิชาเคมี คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ปทุมวัน กทม. 10330

Contact Address: Department of Chemistry, Faculty of Science, Chulalongkorn University, Patumwan, Bangkok 10330, Thailand
Tel 66-2218-7587, 66-2218-7607 Fax 66-2254-1309 E-mail: supawan.t@chula.ac.th

Professor Jung-II Jin
President, IUPAC

April 9, 2009

Dear Professor Jung-II Jin

It is my pleasure to inform you that the chemical society of Thailand is now ready to apply for NAO membership of IUPAC. Please find the files of our constitution and the activities of these past two years as per attached documents. The Chemical Society will pay the 2009 membership fee of US\$3800 via wire transfer as informed by the secretariat of IUPAC within this month. Please contact Professor Vudhichai Parasuk, the Vice-President of the Chemical Society of Thailand at for any further detail you may require at his e-mail address : parasuk@atc.atccu.ac.th

We are thankful to you for your encouragement and suggestions. We also hope that IUPAC will consider the acceptance of the Chemical Society of Thailand to be an NAO member of IUPAC soon.

Faithfully Yours

Supawan Tantayanon, Ph.D.
President, The Chemical Society of Thailand



International Union of Pure and Applied Chemistry

Secretariat: P.O. Box 13757, Research Triangle Park, NC 27709-3757, USA
 TEL: 1-919-485-8700 FAX: 1-919-485-8706 EMAIL: secretariat@iupac.org

Application for IUPAC Adhering Organization Status

The formal Members of IUPAC are the National Adhering Organizations, and this document sets out the information required for application. The Council is the governing body of IUPAC, and meets every other year (odd numbered years) at the IUPAC General Assembly. Council must review all applications and is responsible for approving admission. An application may be submitted at any time; however, an application received no later than 01 February of the year in which a Council meeting is to be held (usually in August) will enable a decision to be made at that Council meeting.

Guidelines/Information for becoming an IUPAC National Adhering Organization:

- (i) According to the IUPAC Statutes, a country may join the Union through only one national organization representing its chemists. This National Adhering Organization may be a national chemical council, a national society representing chemistry, a national academy of science, or any other institution or association of institutions representative of national chemical interests.
- (ii) For countries in which there is not a single body that represents all chemists, a National Chemistry Committee for IUPAC may be formed to act as the NAO. This committee should represent all members of the various chemical societies.
- (iii) The word country may include a specific geographic territory that is widely recognized as having the cultural and administrative characteristics usually associated with an independent state but without necessarily having complete independence or sovereignty.
- (iv) NAOs pay National Subscriptions annually to IUPAC. The amount of the National Subscription is based on the chemical turnover for that country, with a minimum National Subscription of USD 1 000. The chemical turnover is the value of chemical products produced in a country as reported by UNIDO and/or CEFIC.
- (v) The National Adhering Organizations are the Members of the Union.

IUPAC also offers the possibility of Associate National Adhering Organization (ANAO) status.

The Associate National Adhering Organizations have “observer” status only and are not voting members of IUPAC. There is a time limit of four years for ANAO status. Over that four-year period, it is anticipated that ANAOs will progressively engage in IUPAC activities and become, at the end, full members with NAO status. It is not however required that an organization first become an ANAO, and it may become an NAO directly.

Organizations applying for ANAO status may also submit an application at any time. The application will be reviewed by the Executive Committee, which is responsible for approving admission.

Guidelines/Information for becoming an IUPAC Associate National Adhering Organization:

Guidelines (i), (ii), and (iii) above apply also to the composition of ANAOs.

- (iv) ANAOs pay annual dues to IUPAC of USD 250.
- (v) The Associate National Adhering Organizations are not Members of the Union but have Observer status.

Please visit this link: <http://www.iupac.org/general/hints.html> for further information regarding the benefits and duties of National Adhering Organizations and Associate National Adhering Organizations. For example, IUPAC-sponsored conferences generally can only be held in countries with NAO status.

When submitting this application, the following items should be included:

Application for IUPAC Adhering Organizations

- (i) A letter from the organization addressed to the President of IUPAC formally applying for Associate National Adhering Organization status or National Adhering Organization Status in IUPAC.
- (ii) A copy of the Statutes & Bylaws of the organization, if they are available in English, or a summary in English if the originals are available only in another language.
- (iii) A brief description of the goals of the organization and its significant activities.

Please return an electronic copy of the completed application and enclosures to the IUPAC Secretariat by e-mail to secretariat@iupac.org. Printed materials should be submitted to the above address.

| <i>For administrative use only</i> | <i>Submitted _____</i> |
|--|--|
| 1 Check One | <input checked="" type="checkbox"/> Applying for National Adhering Organization Status <input type="checkbox"/> Applying for Associate National Adhering Organization Status |
| 2 Organization Name | Chemical Society of Thailand |
| 3 Country/Region that the Organization Represents | Thailand |
| 4 Address | Department of Chemistry, Faculty of Science, Chulalongkorn University Phyathai Rd., Patumwan, Bangkok 10330, Thailand |
| 5 Organization Contact to IUPAC <i>Will be published if application is approved</i> | Chemical Society of Thailand Department of Chemistry, Faculty of Science, Chulalongkorn University, Phyathai Rd., Patumwan, Bangkok 10330, Thailand supawan.t@chula.ac.th |
| 6 Name of the person submitting this form <i>if not the Responsible Person</i> | Assoc. Prof. Dr. Vudhichai Parasuk parasuk@atc.atccu.chula.ac.th |
| 7 Approximately how many members does the organization serve? | 1,000 |
| 8 Please list any publications that the organization produces. | Chemical Society of Thailand is a co-owner of "Chemistry Asian Journal" of Wiley's publishing |
| 9 How does the organization plan to relay the benefits of IUPAC membership to its membership? | The Chemical Society of Thailand plan to publicize the benefits of IUPAC memberships through our website http://www.chemsocthai.org and also at the annual convention. |

The Chemical Society of Thailand has following objectives:

- 1 Promotion of unity among fellow members and people who have an interest in chemistry subject
- 2 Monitoring and promoting ethical practices of chemical related professionals
- 3 Protecting the duly right of chemical profession and look after benefit and safety of common people in topic related to chemistry
- 4 Promotion and distribution of chemical knowledge in areas of education, research, applications and developments for benefit of members and common people.
- 5 Being center for collections of information related to chemistry for benefit to academics and professionals in:
 - 5.1 Sharing of knowledge, experience and thoughts among members or other national and international chemistry related institutions
 - 5.2 Consulting and informing people and agencies on topics related to chemistry
 - 5.3 Coordinating and collaborating both national and international chemistry related institutions
 - 5.4 Bringing expertise of members to the benefit of society and country development
- 6 Promotion roles of chemists in:
 - 6.1 Monitoring the chemical safety of storage, transportations, commercials, exchange, usage and disposal of hazardous chemicals
 - 6.2 Practicing chemical professions

REGULATIONS
CHEMICAL SOCIETY OF THAILAND

Registered at June 24, 1970

Chapter 1

General Statement

1. Title: This society is named “Chemical Society of Thailand” abbreviated as C.S.T.
2. Office: The society’s office is at room 116, Chemistry Building, Faculty of Science, Mahidol University, Rama VI Road, Bangkok
3. Objectives: The objectives of the Chemical Society are non-political attached as stated in the followings.
 - 3.1 Promotion of unity among fellow members and people with interest in chemistry subject.
 - 3.2 Promotion and monitoring of ethical practices of chemical related professionals.
 - 3.3 Protection of the duly right to carry out chemical profession for fellow members and look after benefit and safety of common people in topic related to chemistry.
 - 3.4 Promotion and distribution of chemical knowledge in areas of education, research, applications and developments for benefit of members and common people.
 - 3.5 Being center for collections of information related to chemistry for benefit to academics and professionals in:
 - 3.5.1 Sharing of knowledge, experience and thoughts among members or other national and international chemistry related institutions
 - 3.5.2 Consulting and informing people and agencies on topics related to chemistry
 - 3.5.3 Coordinating and collaborating both national and international chemistry related institutions
 - 3.5.4 Bringing expertise of members to the benefit of society and country development
 - 3.6 Promotion roles of chemists in:
 - 3.6.1 Monitoring the chemical safety of storage, transportations, commercials, exchange, usage and disposal of hazardous chemicals
 - 3.6.2 Practicing chemical professions



الجمعية الكيميائية التونسية
SOCIÉTÉ CHIMIQUE DE TUNISIE

Visa N° 4455 du 14/02/75 - JOR1 N°24 du 28/03/75

January 23, 2009

Prof. Dr. Jung Il Jin
President of IUPAC
104 T.W. Alexander Drive, Building 19
Research Triangle Park
NC 27709
USA

Mister President,

On behalf of the Bureau of Société Chimique de Tunisie, I am pleased to inform you that we would like to become a full (NAO) member of IUPAC instead of an associate member.

Would you please forward to The Council of IUPAC the application of Société Chimique de Tunisie to become a NAO member in IUPAC from the beginning of 2010.

Looking forward to hearing from you.

Best regards

Yours sincerely

Pr. Mohamed JEMAL
President of Société Chimique de Tunisie
Faculty of Science
Chemistry Department
2092 Tunis El Manar
Tunisia
Tel : + (216) 98 902 771
Fax : + (216) 71 885 008
e-mail : jemal@planet.tn

Enclosure : Application Form
Summary of Statutes and Bylaws,
Description of significant activities.

SOCIÉTÉ CHIMIQUE DE TUNISIE
Faculté des Sciences de Tunis - Département de Chimie
CAMPUS UNIVERSITAIRE - 2092 El Manar II - Tunis
Tél.: 71 872 600 - Fax: 71 885 008

الجمعية الكيميائية التونسية
كلية العلوم بتونس - قسم الكيمياء
المركز الجامعي - 2092 المنار II - تونس
الهاتف: 71 872 600 - الفاكس: 71 885 008



International Union of Pure and Applied Chemistry

Secretariat: P.O. Box 13757, Research Triangle Park, NC 27709-3757, USA
 TEL: 1-919-485-8700 FAX: 1-919-485-8706 EMAIL: secretariat@iupac.org

Application for IUPAC Adhering Organization Status

The formal Members of IUPAC are the National Adhering Organizations, and this document sets out the information required for application. The Council is the governing body of IUPAC, and meets every other year (odd numbered years) at the IUPAC General Assembly. Council must review all applications and is responsible for approving admission. An application may be submitted at any time; however, an application received no later than 01 February of the year in which a Council meeting is to be held (usually in August) will enable a decision to be made at that Council meeting.

Guidelines/Information for becoming an IUPAC National Adhering Organization:

- (i) According to the IUPAC Statutes, a country may join the Union through only one national organization representing its chemists. This National Adhering Organization may be a national chemical council, a national society representing chemistry, a national academy of science, or any other institution or association of institutions representative of national chemical interests.
- (ii) For countries in which there is not a single body that represents all chemists, a National Chemistry Committee for IUPAC may be formed to act as the NAO. This committee should represent all members of the various chemical societies.
- (iii) The word country may include a specific geographic territory that is widely recognized as having the cultural and administrative characteristics usually associated with an independent state but without necessarily having complete independence or sovereignty.
- (iv) NAOs pay National Subscriptions annually to IUPAC. The amount of the National Subscription is based on the chemical turnover for that country, with a minimum National Subscription of USD 1 000. The chemical turnover is the value of chemical products produced in a country as reported by UNIDO and/or CEFIC.
- (v) The National Adhering Organizations are the Members of the Union.

IUPAC also offers the possibility of Associate National Adhering Organization (ANAO) status.

The Associate National Adhering Organizations have “observer” status only and are not voting members of IUPAC. There is a time limit of four years for ANAO status. Over that four-year period, it is anticipated that ANAOs will progressively engage in IUPAC activities and become, at the end, full members with NAO status. It is not however required that an organization first become an ANAO, and it may become an NAO directly.

Organizations applying for ANAO status may also submit an application at any time. The application will be reviewed by the Executive Committee, which is responsible for approving admission.

Guidelines/Information for becoming an IUPAC Associate National Adhering Organization:

Guidelines (i), (ii), and (iii) above apply also to the composition of ANAOs.

- (iv) ANAOs pay annual dues to IUPAC of USD 250.
- (v) The Associate National Adhering Organizations are not Members of the Union but have Observer status.

Please visit this link: <http://www.iupac.org/general/hints.html> for further information regarding the benefits and duties of National Adhering Organizations and Associate National Adhering Organizations. For example, IUPAC-sponsored conferences generally can only be held in countries with NAO status.

When submitting this application, the following items should be included:

Application for IUPAC Adhering Organizations

- (i) A letter from the organization addressed to the President of IUPAC formally applying for Associate National Adhering Organization status or National Adhering Organization Status in IUPAC.
- (ii) A copy of the Statutes & Bylaws of the organization, if they are available in English, or a summary in English if the originals are available only in another language.
- (iii) A brief description of the goals of the organization and its significant activities.

Please return an electronic copy of the completed application and enclosures to the IUPAC Secretariat by e-mail to secretariat@iupac.org. Printed materials should be submitted to the above address.

| <i>For administrative use only</i> | <i>Submitted</i> _____ |
|--|---|
| 1 Check One | <input checked="" type="checkbox"/> Applying for National Adhering Organization Status <input type="checkbox"/> Applying for Associate National Adhering Organization Status |
| 2 Organization Name | Société Chimique de Tunisie |
| 3 Country/Region that the Organization Represents | Tunisia |
| 4 Address | Faculty of Science, Chemistry Department; 2092 Tunis El Manar Tunisia |
| 5 Organization Contact to IUPAC <i>Will be published if application is approved</i> | Société Chimique de Tunisie, Faculty of Science, Chemistry Department, 2092 Tunis El Manar, Tunisia e-mail : contact@sctunisie.org |
| 6 Name of the person submitting this form if not the Responsible Person | (including address and e-mail) |
| 7 Approximately how many members does the organization serve? | 500 |
| 8 Please list any publications that the organization produces. | Journal de la Société Chimique de Tunisie |
| 9 How does the organization plan to relay the benefits of IUPAC membership to its membership? | +/- by publishing information in the journal +/- by sending e-mails to the members. |

**Summary of The Statutes and Bylaws of
Société Chimique de Tunisie**
(written in February 14, 1978)

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1/ The aim of the ‘Société Chimique de Tunisie’ (SCT) is to promote Science and support Education particularly in Chemistry in Tunisia. This could be made by:

+/ the organization of scientific meetings, conferences and workshops on chemistry and its applications.

+/ the publication and support of research in the various chemistry fields

2/ The “Société Chimique de Tunisie” is located in Tunis and could be transferred to another place on decision of the Bureau.

3/ Any modification of the location should be acknowledged and approved by the Administrative Authorities.

4/ The Directory Committee should inform the Administrative Authorities of any modification in the Bureau composition within one month from the modification date.

5/ Any modification of the statute should be acknowledged by the Administrative Authorities. The proposed modifications, if any, can't be executive before approval by the Authorities.

6/ The members of SCT could be : +/-ordinary members, +/- honorable member or +/- supporting members

7/ Each member has to pay the affiliation fee

8/ The SCT is not allowed to organize events or meetings in which funds are collected and distributed over the members

9/ Funds of SCT could come from +/- adherent affiliation fee +/- financial donation and +/- money resulting from the organization of allowed meetings

10/ SCT is directed by a Bureau of 12 members with a +/-President, +/- two vice-Presidents, +/- a General Secretary, +/- a vice-General Secretary +/- a Treasurer. +/- a vice-Treasurer, and 5 ordinary members.

11/ The participation in the Bureau activities is free and not retributive.

12/ The Bureau should meet regularly at least once every month, and decisions it takes should be approved by the majority of all members.

13/ SCT is represented by its President in all circumstances, and particularly in justice court. He also has the responsibility of executing and coordinating the Bureau activities.

**Description of significant activities of
« Société Chimique de Tunisie »**

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Since 1978 the « Société Chimique de Tunisie » (SCT) has accomplished a lot of actions in order to promote chemistry at University, Secondary School and Industry, either by organizing meetings, seminars and workshops dedicated to research and Education in Chemistry or by taking part in training secondary school teachers in order to help them in teaching and performing laboratory experimentation. SCT participated also in activities at the Arabic and African levels.

The main activity SCT used to do is the organization of the Chemistry National Meeting. This event gathers regularly between 350 and 400 chemists, and takes place once every two years. The last National Meeting, the 15th one, was organized in Hammamet, Tunisia, 21 to 24 December 2008.

In the last few years, SCT started the organization of two specific meetings. This concerns the “Journées de Chimie Organique” (JCO) and the “Journées de Chimie du Solide” (JCS). Each one of these events is also organized once every two years and used to gather between 120 and 150 participants. The last JCO, the 4th one, took place in September 2006, and the last JCO, the 3rd one, was organized in November 2007.

SCT organized also workshops in collaboration with Industry in Tunisia, on Analytical Methods, Pollution, Energy Saving and other items Industry is interested in.

SCT participated also in the curricula commission launched by the Education Ministry in Tunisia and took part in training secondary school teachers in order to help them understand some concepts in Chemistry and to make them aware of chemistry experimentation using small devices and local materials.

SCT participated in the formation of the Arab Union of Chemists (AUC) and the Federation of the African Chemical Societies (FASC). It also organized the 7th meeting of AUC in Hammamet, 1983, and participated in the two congresses of FACS, in Addis Ababa and Cairo.

SCT publishes regularly the “Journal de la Société Chimique de Tunisie” since 1980. This Journal appears twice a year and is abstracted by CAS.

Tunis, 23 January, 2009.

Report on the International Year of Chemistry 2011

Designation by the United Nations

In 2007, the IUPAC Council unanimously endorsed the plan to obtain the proclamation of 2011 as the International Year of Chemistry. Less than a year later, UNESCO's Executive Board recommended the adoption of a resolution to that effect and agreed to support all efforts leading the UN General Assembly to declare 2011 the International Year of Chemistry. On 19 December 2008, the 63rd Session of the UN General Assembly took the decision to proclaim 2011 as the International Year of Chemistry. The resolution was brought forward by Ethiopia, with the formal sponsorship of over 35 countries and the support of many more. The text of the resolution, which was presented under the Sustainable Development Agenda, recognizes that humankind's understanding of the material nature of our world is grounded, in particular, in our knowledge of chemistry. It stresses that education in and about chemistry is critical in addressing challenges such as global climate change, in providing sustainable sources of clean water, food and energy, and in maintaining a wholesome environment for the wellbeing of all people. The Year will help to draw attention to the UN Decade of Education for Sustainable Development 2005-2014. The year 2011, the 100th anniversary of the award of the Nobel Prize in chemistry to Mme Maria Sklodowska Curie, will also provide an opportunity to celebrate the contribution of women to science. The Year also marks the 100th anniversary of the founding of the International Association of Chemical Societies (IACS), which was succeeded by IUPAC a few years later. IACS and IUPAC were established to address the needs for international scientific communication and cooperation among chemists by standardizing nomenclature and terminology. For full details of the press release, see <<http://media.iupac.org/news/archives/2008/IYC2011_Release_081230.pdf>>.

The UN General Assembly requested IUPAC and the United Nations Educational, Scientific and Cultural Organization (UNESCO) to assume the major planning responsibilities.

Through our UNESCO link, Julia Hasler, all UNESCO regional and national offices will be informed of UNESCO's official involvement in IYC 2011, in effect authorizing their participation in local activities.

Meetings with Chemical Societies

The President of IUPAC has been meeting with the Presidents of national chemical societies around the world to encourage their participation in IYC 2011. In 2008, President Jin met with some Latin American presidents during a meeting of the Federation of Latin American Chemical Societies (FLAQ). The opportunity was taken for a more extensive meeting with the leaders of the American Chemical Society during the meeting in Philadelphia in August 2008. In January 2009, the Deutscher Chemischer Gesellschaft hosted a meeting with a group of European chemical society leaders in Frankfurt. Contact was also made with representatives of the African and some Arabian chemical societies

during the conference of the Federation of African Societies of Chemistry (FASC) in Cairo in January. A further European meeting, adjacent to the IUPAC Bureau meeting in Bratislava in April, brought together presidents and representatives of more Central and Eastern European countries. Further meetings are planned with the Royal Society of Chemistry in London, and with representatives of the Asian chemical societies during the 13th Asian Chemical Congress of the Federation of Asian Chemical Societies (FACS) to be held in Shanghai in September.

United Nations Contacts

In January, President Jin also met with the Secretary General of the United Nations, Mr. Ki-Moon Ban, to thank him for the United Nations designation of 2011 as the International Year of Chemistry, and to discuss closer cooperation between IUPAC and UN Agencies. In particular, it was indicated that IUPAC could most effectively work together with the UN Department of Economics and Social Affairs (DESA), as well as UNESCO. It was agreed that IUPAC should take steps to become an accredited Non-Governmental Organization (NGO) of DESA. A meeting to develop future cooperation is planned.

Management and Planning

The IYC Management Committee has met several times and planning has begun in earnest.

The IYC 2011 logo design and the tag line "Chemistry - Our Life, Our Future" have been agreed, together with guidelines for their use. A version is available as a footer attachment for emails, and its use is encouraged.

The IYC web site <<http://www.chemistry2011.org> (<http://www.chemistry2011.org/>)> is now open and contains the prospectus for downloading. The professionally designed web site will be expanded over the next few months to a fully functional interactive tool for communication and collaboration. Main areas will include an open ideas forum for discussion of events and activities and the facility for submitting proposals for approval. IUPAC will monitor the open area to ensure that content is consistent with the objectives for the year. An "approved activities" area will be posted so that visitors can see the schedule of local events and the overall program. The front page will provide details on how to engage in the year, and identify national points of contact. It will show the global extent of activities and the themes for the year, based partly on the core challenges for chemistry in meeting society's needs. The website will also offer a place for official sponsors of IYC to display their logos and for other supporting organizations and individuals to be identified.

So far, a number of cornerstone events are being planned. These include:

- the Inaugural Event at UNESCO in Paris, 27-28 January 2011
- the Congress and General Assembly in San Juan, August 2011
- the Closing Ceremony in Brussels in December 2011

Also there will be a promotional reception held at PACIFICHEM in December 2010 to publicize IYC 2011 and activate further enthusiasm.

Ideas for further events, both global and national are welcome, and for this purpose, the World Chemistry Leadership Meeting and the Round Table Discussions held in Glasgow will concentrate in aspects of IYC 2011.

All NAOs and ANAOs are members of the IYC Stakeholders Forum and have access to the IYC Stakeholders Discussion Board. All NAOs and ANAOs are strongly urged to participate with ideas, comments, and information.

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S1 Definition of the Union

The International Union of Pure and Applied Chemistry (IUPAC) (hereafter referred to as “the Union”) is a voluntary, nongovernmental, nonprofit association of organizations each representing the chemists of a member country, a member country being a country whose Adhering Organization has joined the Union.

S2 Objectives

The objectives of the Union are as follows:

- S2.1 to promote continuing cooperation among the chemists of the member countries;
- S2.2 to study topics of international importance to pure and applied chemistry which need standardization or codification;
- S2.3 to cooperate with other international organizations that deal with topics of a chemical nature;
- S2.4 to contribute to the advancement and understanding of pure and applied chemistry in all its aspects.
- S2.5 In pursuing these objectives, the Union will observe the basic policy of political nondiscrimination and affirms the rights of chemists of any country to adhere to or to associate with international activity in the field of chemistry without regard to race, religion, or political philosophy.

S3 Membership

- S3.1 A country may join the Union through only one national organization representing its chemists. This Adhering Organization may be a national chemical council, a national society representing chemistry, a national academy of science, or any other institution or association of institutions representative of national chemical interests.
- S3.2 The Adhering Organizations are the Members of the Union.
- S3.3 A country requesting admission to the Union shall provide full information about its proposed Adhering Organization.
- S3.4 An Adhering Organization may withdraw from the Union provided that it has fulfilled its financial obligations, or may be removed from the Union for failure to fulfill such obligations.

S4 Organization

- S4.1 The organization of the Union comprises its Council, a Bureau, an Executive Committee, Standing

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- Committees, Divisions, Commissions, and other appropriate bodies as determined by the Council.
- S4.2 A General Assembly of the International Union of Pure and Applied Chemistry shall be held normally each second year, and shall consist of a set of meetings of the Council and such other bodies of the Union as the Bureau shall decide. Where the duration of office of Officers of the Union, Elected Members of the Bureau, and Titular Members and Associate Members of Division Committees, Commissions, or other bodies of the Union is referred to in these Statutes, it shall begin on 1 January of the year following their election at a General Assembly and shall end on 31 December of the year when the appointment is due to terminate. In the filling of casual vacancies the Bureau may authorize an appointment to Division Committees, Commissions, and other bodies of the Union except for the Executive Committee and Bureau to begin at an intermediate date. Any such appointment should be regarded as dating from 1 January of the year following the previous General Assembly in respect of the period of office for Division Committees, and Commissions. No person shall hold more than three appointments to bodies of the Union, except at the discretion of the Bureau in respect of membership of a subcommittee or acting as an official representative within or outside the Union.
- S4.3 The official headquarters of the Union shall be in Zürich (Switzerland) until otherwise decided by the Council. Any change in location requires the approval of two-thirds of the total number of votes assigned to the Adhering Organizations.
- S4.4 The legal domicile of the Union is accepted by Finanzdirektion des Kantons Zürich as an Association under Swiss Law and for legal purposes the Union will act in accordance with Articles 60 and following of the Swiss Civil Code and by the present Statutes.
- S5 Council**
- S5.1 The Council, to which the Bureau, Executive Committee, Standing Committees, Divisions, Commissions, and all other bodies of the Union are responsible, is composed of the Delegations of the Adhering Organizations. Each Delegation shall be assigned a specific number of votes/Delegates (1-6) according to principles decided by the Council. Each Adhering Organization shall appoint its Delegates for every Council meeting.
- S5.2 Regular meetings of the Council shall take place every two years as part of a General Assembly;

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special meetings may be convened by the President of the Union and shall be convened by the President at the request of one-third of the total number of Adhering Organizations, which shall specify the reason for such requests.

- S5.31 No decision of the Council shall be valid unless taken at a meeting of the Council at which at least one-half of the maximum number of votes is represented.
- S5.32 For all voting by the Council, abstentions shall not be recorded as votes.
- S5.33 The voting procedure to be adopted is different according to whether a proposal is a scientific or nonscientific matter. The Presiding Officer shall decide whether for the purpose of voting a matter shall be considered to be of a scientific or nonscientific nature, and that decision shall be final. The method of voting shall be specified in the Bylaws.
- S5.34 There shall be no voting by proxy.
- S5.4 Functions of the Council not mentioned in other Articles of these Statutes shall be as follows:
- S5.401 to elect the Officers of the Union and the Elected Members of the Bureau;
- S5.402 to discuss and determine the general policy of the Union;
- S5.403 to approve the Bylaws of the Union and changes therein;
- S5.404 to approve the terms of reference of the Bureau, Executive Committee, Standing Committees, Divisions, Commissions, and all other bodies of the Union as prescribed in the Statutes and Bylaws;
- S5.405 to determine every four years, the one language in which the official records of the meetings of the Council, Bureau, and Executive Committee shall be kept and published;
- S5.406 to receive and consider reports
- (i) by the President on the state of the Union,
 - (ii) by the Bureau, Executive Committee, Division Presidents, and other bodies of the Union;
- S5.407 to ratify decisions taken by the Bureau and Executive Committee between General Assemblies;
- S5.408 to consider and adopt or reject the accounts of the Union;
- S5.409 to examine and establish the budget of the Union for the next two financial years;
- S5.410 to determine the dates and place of General Assemblies;
- S5.411 to take such other actions as are required in the exercise of its authority under the Statutes and

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Bylaws.

S5.5 The official text of a report shall be in the official language of the Union.

S6 Officers

S6.1 The Officers of the Union shall be the President, the Vice-President, the Past-President, the Secretary General, and the Treasurer.

S6.21 The President shall hold office for two years and shall not be reelected.

S6.22 The President is the administrative head of the Union, shall preside at the meetings of the Council, of the Bureau, and of the Executive Committee and shall be *ex officio* a member of all bodies of the Union. The President may delegate power as chief representative of the Union and to preside at meetings to the Vice-President, to another Officer of the Union, or to an Elected Member of the Bureau. When neither the President nor the Vice-President is able to perform the functions of the office of President, the immediate Past-President or, if absent, an Elected Member of the Bureau, chosen by the Bureau, shall assume temporarily the office of President.

S6.23 The President shall submit to each regular meeting of the Council a report on the general state of the Union.

S6.31 The Vice-President, designated as President-Elect, shall assume the office of President in the event of the President being unable to perform the functions of that office, without prejudice to the forthcoming period of office as President.

S6.32 The Vice-President shall submit to the Bureau a critical assessment of the programs and the projects of all IUPAC bodies.

S6.41 The Secretary General shall carry out the business of the Union as specified by the Council, by the Bureau, by the Executive Committee, or by the President, and be responsible for keeping its records and for the administration of the Secretariat.

S6.42 The Secretary General shall be elected for four years and be eligible for reelection up to a maximum of a further four years.

S6.51 The Treasurer shall be responsible for the accounts of the Union, shall prepare a budget for approval of the Bureau and the Council, shall approve expenditures from the funds of the Union, and, subject to the approval of the Executive Committee, shall be responsible for the investment

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- and custody of the funds of the Union. The Treasurer shall ensure that an appropriate record of all financial authorities and transactions is maintained.
- S6.52 The Treasurer shall be elected for four years and be eligible for reelection up to a maximum of a further four years.
- S6.6 To assist in the administration of the business of the Union, the Executive Committee shall appoint an Executive Director responsible to the President and Executive Committee (Bureau, Council) through the Secretary General and in financial matters through the Treasurer.
- S6.7 The Secretariat shall consist of an Executive Director and any such other staff as approved by the Executive Committee.
- S6.8 The Council shall establish a Bureau to act for the Union during intervals between meetings of the Council, except on matters specifically excluded from its delegated authority.
- S6.9 The Council shall establish Standing Committees to advise the President and the Executive Committee; such bodies shall include a Finance Committee.

S7 Bureau

- S7.1 The Bureau shall normally meet once a year and at other times when the President considers it to be desirable. In a year when the General Assembly meets, a meeting of the Bureau shall take place during the General Assembly.
- S7.2 The Bureau shall consist of the President, the Vice-President, the Secretary General, the Treasurer, the immediate Past-President, and Presidents of Divisions, together with not less than ten other members elected by the Council who shall be known as Elected Members. The period of service of these Elected Members of the Bureau shall be four years. The periods of service shall be arranged in such a way as to ensure continuity. These Elected Members are eligible for reelection to the same office for one more period of four years. No President of a Division may be simultaneously an Elected Member of the Bureau. Unless exceptional circumstances are established and special permission of the Council is granted, no Adhering Organization shall have more than one Elected Member on the Bureau, and the principle of fair geographical representation of Members shall be taken into account. The Council shall specify those bodies of the Union whose Chairs shall also be designated Members of the Bureau; such Members shall

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have full voting powers.

S7.3 In case of an emergency which prevents the holding of elections, the Officers of the Union, the Elected Members of the Bureau, and the Presidents of the Divisions will continue to serve until statutory elections can be held.

S7.4 The principal duties of the Bureau, subject always to the Statutes and Bylaws, are as follows:

S7.41 to ensure the strict observance of Statutes and Bylaws;

S7.42 to prepare the agenda for meetings of the Council and in particular to make provision for elections;

S7.43 to make recommendations thereon to the Council;

S7.44 to attend the meetings of the Council;

S7.45 to implement the decisions of the Council and execute the program of the Union as directed by the Council;

S7.46 to take steps to ensure that International Congresses of Pure and Applied Chemistry are held;

S7.47 to take decisions about the holding of scientific meetings as proposed by the Division and Standing Committees;

S7.48 to take all other steps necessary for the good conduct of the affairs of the Union.

S7.5 The Bureau may neither elect Officers of the Union nor admit nor remove Members of the Union, but it may fill temporarily vacancies among the Officers pending the next regular meeting of the Council, when the Council shall fill such vacancies.

S7.6 The Bureau may fill casual vacancies in accordance with Statute 4.2.

S7.7 The Bureau shall establish an Executive Committee to act for it in ensuring an orderly discharge of the functions of the Union.

S8 Executive Committee

S8.1 The Executive Committee may formulate standing orders to facilitate its discharge of the foregoing functions.

S8.2 The Executive Committee shall be limited to eight members and shall include the President, the Vice-President, the Secretary General, the Treasurer, and the immediate Past-President. The other members shall be elected by the Bureau from among its Elected Members. The period of service of an Elected Member shall be four years or until the end of the term as a Bureau Member,

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whichever is the shorter. An Elected Member is eligible for reelection to the same office for one more period of four years. Terms of office shall be arranged such as to ensure continuity.

S9 Finance

S9.1 Each Adhering Organization shall pay an annual subscription to the Union, due 1 January and payable before 31 December in each year. The minimum amount of this annual subscription shall be decided from time to time by the Council.

S9.2 Any Adhering Organization in arrears with its subscription for a period of twelve months from the due date, shall be warned, shall be deprived of its voting rights, and all publications of the Union shall be withheld from it. Any Adhering Organization in arrears for a period of twenty-four months from the due date shall automatically cease to be a Member of the Union. Partial payment of the subscription shall be regarded as nonpayment, unless the Union exceptionally waives the outstanding subscription. Membership of bodies of the Union of all persons belonging to an Adhering Organization, which ceases to be a Member, shall continue at the discretion of the Bureau to the end of the period of service.

S9.3 Any Adhering Organization that shall withdraw (see also Statute 3.4) or cease for any reason to be a Member of the Union shall forfeit claims upon the funds of the Union.

S9.41 In addition to the annual subscription, the Union may receive financial contributions from other sources, such as gifts, bequests, and legacies. The Executive Committee may set up any auxiliary bodies to the Union that will enable such financial contribution to be received.

S9.42 None of the constituent bodies of the Union (e.g., a Division) may solicit funds for Union purposes from organizations other than the Union until the specific approval of the Bureau of the Union has been obtained. The disposal of any such funds shall be only with the approval of the Bureau.

S9.51 Any expenditure from the funds of the Union shall require authorization from the Treasurer, acting on behalf of the Bureau. The Treasurer may delegate to the Executive Director the expenditure of limited amounts from the funds of the Union.

S9.52 Members of IUPAC bodies may receive contributions towards travel and subsistence expenses from funds of the Union, as authorized by the Treasurer. The Bureau shall establish procedures

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and guidelines for the approval of such expenses.

S10 Divisions and Commissions

S10.1 The scientific work of the Union shall be undertaken by the Divisions, which shall be responsible to the Bureau and which shall represent within the Union the branches of chemistry indicated by their Divisional titles, and by such other bodies as are appointed by the Council.

S10.2 Divisions may be created and existing ones may be dissolved or modified by the Council. The initial Members of Division Committees shall be appointed by the Council.

S10.3 The procedures of each Division shall be governed by the Bylaws but a Division may also adopt rules which shall be in accord with the general policy of the Union, its Statutes and Bylaws, and which shall be subject to the approval of the Council.

S10.4 Each Division may include such Commissions as are approved by the Council.

S10.5 Joint Commissions between Divisions and/or Joint Commissions between the Union and other international scientific bodies may be attached to one of the Divisions or to the Bureau of the Union as decided by the Council. Rules for such joint bodies shall, if necessary, be set up by the Division Committee or by the Bureau, as the Bureau shall decide.

S10.6 A Division Committee may appoint such subcommittees as are appropriate to the work of the Division and its Commissions.

S11 Standing Committees

Standing orders for these committees shall be determined by Council. Members shall be appointed by the President of the Union.

S12 Attendance at meetings

Attendance at meetings of bodies of the Union shall be restricted to members of those bodies and observers as approved by the meeting Chair. The names of approved observers shall be communicated to the Secretary General via the Secretariat.

S13 Associated Organizations

The Council may decide to associate with existing international organizations whose aims and activities are in harmony with those of the Union. Their international scope of activities, with no a priori limitation to a part of the world, shall be explicit in their title or statutes. In the case of

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apparent competition with another international organization already associated with IUPAC, the Council shall make a choice and decide with which organization IUPAC wishes to be associated, while avoiding to associate with both at the same time. These organizations shall then be known as Associated Organizations of the Union.

S14 Company Associates

Organizations such as industrial companies, research and development institutions and laboratories, scientific societies, or any other bodies interested in the activities of the Union may become associated with it as Company Associates. The conditions under which such association shall occur or continue, including the determination of the minimum amount of annual subscription or donation, shall be decided by the Council on the recommendation of the Bureau.

S15 Congresses and Other Scientific Meetings

S15.1 At suitable intervals, International Congresses of Pure and Applied Chemistry shall be organized under the auspices of the Union. These Congresses shall comprise one or more branches of chemistry represented by the Divisions of the Union. The Council shall approve the scope of each Congress on the recommendation of the host country, with a view to achieving, by suitable rotation, the coverage of all branches of pure and applied chemistry. The Council shall also decide upon the place and dates of the Congress. The arrangements for such a Congress shall be entrusted to a committee set up in the host country. This committee shall cooperate with the Bureau, the Officers of the Union, and the appropriate Division and Standing Committees.

S15.2 Cooperation of the Union in the organization of a Congress shall not involve the Union in financial responsibility.

S15.3 The Council may organize other scientific meetings or may offer the collaboration of the Union in the planning and arrangement of scientific meetings initiated by other organizations.

S16 Adoption, Changes, and Interpretation of Statutes

S16.1 The Statutes shall take effect immediately after their adoption by the Council.

S16.2 The English text of the Statutes shall be used exclusively as the authorized text for the interpretation of the Articles of the Statutes and Bylaws, but the Council may approve the Issue by the Union of versions in other languages.

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S16.3 Changes in the Statutes may be proposed by the Bureau or any Adhering Organization. Notice of changes so proposed shall reach the Secretary General via the Secretariat in writing at least six months before the meeting of the Council at which the proposal is to be considered. No change shall be made except at a meeting of the Council and with the approval of two-thirds of the total number of votes assigned to the Adhering Organizations.

S16.4 In all cases where the Statutes are not clear or do not give a decision, the President's ruling shall be decisive.

S17 Duration

The Union shall not be dissolved except at a meeting of the Council convened specifically for this purpose by notice given three months in advance. At such a meeting, more than three-quarters of the maximum possible number of votes of the Adhering Organizations must be represented and cast, and two-thirds of the votes recorded shall be required for dissolution. If three-quarters of the maximum possible number of votes are not represented, the Council shall be convened again after a period of at least six months and at this second meeting the Union may be dissolved if the proposal for dissolution receives two-thirds of the votes recorded. In the case of dissolution of the Union, the Council shall appoint three trustees to carry out the liquidation of the assets of the Union. The net assets shall be transferred to one or more international scientific organizations.

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B1 Membership (cf. Statute 3)

A request of a country for admission to the Union can be received in writing, together with the appropriate documentation, by the Secretary General via the Secretariat at any time. It will then be considered by the Executive Committee, Bureau, or Council, whichever meets next after the application has been received, and if approved, membership shall begin on 1 January of the following year, provided that payment of that year's dues are received. The admission of a new Member approved by the Executive Committee or Bureau must be ratified by Council at its next regular meeting. If payment has been received of the dues for the current year, Council may allow a newly admitted NAO to vote at the current Council meeting, on all items after the ratification of membership.

B2 Voting Procedure in Council (cf. Statute 5)

B2.1 Scientific Matters

B2.11 Recommendations of a scientific nature received from Divisions, or other bodies of the Union, shall be the responsibility of the Council. The Council may adopt them by a simple majority of personal votes cast by the Delegates present at a regular meeting. Between such meetings, the Bureau may act on behalf of the Council in these matters. The Bureau shall establish procedures for approval of recommendations in nomenclature, symbols, terminology, and conventions.

B2.12 Postal and electronically submitted ballots on scientific matters may be conducted in accordance with a procedure to be determined by the Bureau for each ballot.

B2.2 Nonscientific Matters

Voting on nonscientific matters shall be by Delegations, each Delegation being entitled to cast the number of assigned votes. All the votes to which the Adhering Organization is entitled shall be cast in the same sense.

B2.21 Admission and Removal of Members

Admission of Members shall be by a simple majority of votes recorded at a regular meeting of the Council. Removal of an Adhering Organization shall be valid only if at least three-quarters of the votes recorded at a regular meeting of the Council are cast in favor of such removal. Any

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reassignment approved by the Council shall become effective on 1 January of the following year.

B.2.22 Elections

For election of Officers of the Union and Elected Members of the Bureau the following rules shall apply:

B2.221 Nominations may be made by the Adhering Organizations. These nominations must be received in writing by the Secretary General via the Secretariat at least two months before the beginning of the meeting of the Council at which the elections will take place. They must indicate clearly the position for which each candidate is nominated and shall be accompanied by a biographical note on each candidate.

B2.222 The Bureau shall discuss the nominations made by the Adhering Organizations at a meeting prior to the meeting of the Council at which the elections are to take place. It has the right to make additional nominations for which information shall be provided. When the number of nominations exceeds the number of vacancies, the Bureau may make recommendations to the Council for filling the vacancies. These recommendations are not binding on the Council.

The officers of the Union and the Elected Members of the Bureau, as defined by the Statutes, shall be elected at a regular meeting of the Council by a written and secret ballot, a simple majority of the votes recorded being required for election. The election for each officer shall be held separately. If no nominee receives a majority on the first ballot, the nominee receiving the smallest number of votes shall be eliminated from the next ballot and successive ballots shall be held until a nominee receives a simple majority of the votes recorded or there are only two nominees on which to vote. If two nominees get an equal number of votes, the Presiding Officer, after consultation with the Executive Committee, shall cast the deciding vote.

For election of Elected Members of the Bureau, the nominees receiving the highest number of votes shall be elected to the vacancies, provided that the number of votes cast for each such nominee shall be a majority of the total votes cast per vacancy. If fewer nominees than the vacancies receive a majority of such votes cast, then those receiving a majority shall be declared elected and a second ballot conducted among the remaining nominees for the

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remaining vacancies. If, in this second ballot, no nominee receives a majority, the nominee receiving the smallest number of votes shall be eliminated from the next ballot and successive ballots conducted until all vacancies are filled. In each ballot, the number of names on ballot papers submitted by each Delegation shall be no more and no less than the number of vacancies outstanding at the conclusion of the previous ballot.

B2.23 Other Nonscientific Matters

Proposals on other nonscientific matters, after consideration, may be adopted without a formal vote unless objections are raised, when a vote shall be taken. Unless specifically stipulated otherwise in the Statutes and Bylaws, a simple majority of the votes recorded shall be required for adoption.

B2.24 Postal and Electronically Transmitted Ballots

Postal and electronically transmitted ballots on nonscientific matters may be conducted in accordance with a procedure described below, each Adhering Organization being entitled to cast the number of assigned votes, provided always that decisions on admission and removal of Members [(B2.21) above] and elections [(B2.22) above], the location of the official headquarters of the Union, changes in Statutes and Bylaws, and the dissolution of the Union are excluded from such postal and electronically transmitted ballots. Decisions reached by postal and electronically submitted ballot on nonscientific matters shall be subject to ratification by the Council at its next meeting. In postal and electronically submitted ballots on nonscientific matters, only those votes shall be valid which are received within four months from the date of mailing of the request for voting. Action shall only be taken if more than one-half of the maximum possible number of votes has been received at that date. A simple majority of the votes shall be required for a decision.

B2.25 Additions to Council Agenda

Matters to be considered at a meeting of the Council must appear on the agenda of that meeting, which shall be sent to the Adhering Organizations at least four months before the meeting is to be held. However, in case of urgency, a question may be added to the agenda with the consent of at least three-quarters of the Delegates present at the meeting. Modification of

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the Statutes or Bylaws, admission or removal of Members, and elections of Officers or Elected Members of the Bureau, are excluded from this procedure.

B3 Divisions and Commissions (cf. Statute 10)

B3.1 Division Committees

B3.101 Each Division shall be administered by a Division Committee consisting of Titular Members, Associate Members, and National Representatives with appropriate expertise.

B3.102 The Titular Members, Associate Members, and National Representatives of a Division Committee and of Commissions within a Division shall together form the Membership of the Division.

B3.103 The Division Committee shall be the organ of liaison between the Bureau on the one hand and the various bodies constituting the Division on the other hand.

B3.104 The Titular Members of each Division Committee shall be chosen by an electorate comprising the Titular Members, Associate Members and National Representatives on the Division Committee, together with the members or officers of such other bodies within the Division that the Bureau may specify. The number of Titular Members shall not exceed ten unless otherwise determined by the Bureau. The term of service of a Titular Member shall be not more than four consecutive years, but shall cease on election as an Officer. The Vice-President and the President of a Division shall not hold these respective offices for more than four consecutive years; the Secretary of a Division shall serve for four consecutive years and be eligible for reelection up to a maximum of a further four years. Exceptional circumstances must be established and special permission of the Bureau granted for Titular or Associate Membership of the same or more than one Division Committee beyond a total of twelve years of total Titular and Associate Membership, whether the Memberships are consecutive or not.

The immediate Past-President of the Division shall be one of the Titular Members of the Division Committee for a period of two years. In addition to these Titular Members, the President, Vice-President, Past-President, Secretary General, and Treasurer of the Union shall be *ex officio* Members of all Division Committees.

The number of Associate Members, who shall have full voting rights, shall not exceed six. The

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term of service of an Associate Member shall be two years, with the possibility of reelection consecutively for two more years only.

A newly elected Titular Member, Associate Member, or National Representative of a Division Committee shall assume office only after approval by the Bureau or Executive Committee. The Adhering Organization with which the Titular Member or Associate Member is connected shall be notified of the appointment.

A Division Committee may elect no more than ten National Representatives on the nomination of Adhering Organizations, with no more than one representative from a given Adhering Organization. The term of a National Representative, who shall have full voting rights, shall be two years, with the possibility of re-nomination and re-election consecutively for only two more years. Exceptional circumstances must be established and special permission obtained from the Bureau for the election of a National Representative from a country already represented on the Committee by a Titular or Associate Member.

- B3.105 The Division Committee shall elect from among its existing and, subject to confirmation, new Titular Members a President, a Vice President designated as President-Elect, and a Secretary. These elections shall be subject to approval by the Council.
- B3.106 The Division Committee may form a Division Executive Committee, consisting of the President, the Vice-President designated as President-Elect, and the Secretary of the Division, to carry out the necessary administrative duties between meetings of the Division Committee.
- B3.107 The functions of the Division Committee shall be as follows:
- B3.1071 to initiate, approve, and manage projects;
 - B3.1072 to plan and organize scientific meetings and engage in other activities that are deemed useful in furthering the objectives of the Division; this includes the approval of Union sponsorship of scientific meetings;
 - B3.1073 to manage a budget for a Division in accordance with a procedure to be prescribed by the Treasurer;
 - B3.1074 to advise the Bureau for recommendations to the Council on scientific matters;
 - B3.1075 to propose to the Council through the Bureau the establishment of Commissions to be attached

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to it and to appoint the membership and the initial officers of these, the appointments having to be approved by the Council;

B3.1076 to propose to the Council through the Bureau the dissolution of existing Commissions when required;

B3.1077 to supervise the work of its Commissions and other bodies.

B3.108 The Division Committee shall meet at least every two years, during a General Assembly.

B3.109 Decisions of the Division Committee must receive the approval of the Bureau when they would have financial consequences involving the budget of the Union. In addition, in order to ensure the fullest coordination between the activities of all the Divisions, the Secretary General via the Secretariat shall be informed of all other decisions taken by the Division Committee.

B3.110 At a General Assembly, the Division President shall report to the Council on the activities of the Division since the last General Assembly. In a year in which a General Assembly is not held, the Division President shall present to the Division Committee and to the Bureau a written report on the activities of the Division since the last General Assembly.

B3.111 Each Division shall make provision for the conduct of the work of its Commissions and other bodies. Such provision, which must receive the approval of the Bureau, may be incorporated in Divisional rules.

B3.2 Annual Meeting of Division Presidents

A meeting of the Division Presidents shall be held each year. At this meeting, topics that are of interest for cooperation between the Divisions or between the Divisions on the one hand and the Council, the Bureau, and the Executive Committee on the other hand shall be discussed and the meeting may make recommendations to the Bureau.

The meeting shall be presided over by one of the Division Presidents elected for this task at the previous meeting. The Secretary General shall be invited to attend.

B3.3 Commissions

B3.301 On the recommendation of a Division Committee, through the Bureau, the Council may create a Commission of the Division. Each Commission shall have as its objective the study of topics of international scientific or technical significance requiring agreement, standardization, or

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codification in some aspect of pure or applied chemistry. The terms of reference of a new Commission shall be clearly described and approved by the Council. If a Division Committee wishes to create a Commission, it must apply to the Bureau for the appointment of an ad hoc committee of three persons who shall study the question and then report back to the Bureau. This report, if favorable to the creation of a new body, shall contain an indication as to the probable duration of the life of the new body and an estimate of its annual cost.

B3.302 At each General Assembly, the Council shall, in the light of the Division President's report and on the recommendation of the Bureau, decide whether or not to continue each Commission.

B3.303 Each scientific and technical Commission shall be composed entirely of specialists. They may consist of Titular Members, Associate Members, and National Representatives, who all shall have full voting rights.

Each Commission shall elect from among its existing and, subject to confirmation, new Titular Members by a simple majority a Chair, a Secretary, and, if desired, also a Vice-Chair. These elections are subject to approval by the Bureau.

B3.304 The Membership of each new Commission is determined by the Council. Thereafter, both Titular Members and Associate Members may be nominated by the Commission but shall assume office only after approval by the Division Committee and by the Bureau or Executive Committee. The terms of service of Titular Members and Associate Members shall be two years, with the possibility of reelection for two years of Membership up to a maximum of eight years. The sum of the years of service as a Titular Member, including service as Chair, Vice-Chair, or Secretary, shall not exceed a total of ten years, whether these are consecutive or not, and further appointment thereafter as an Associate Member shall be for two years only. The rotation of a person through alternate periods of Associate, Titular, and Associate Membership may be permitted to a total of twelve years. Exceptional circumstances must be established and special permission of the Bureau granted for:

- (i) the reappointment as a Titular Member of a person who has served eight years as a Titular Member, whether these are consecutive or not. The extension shall be for a period of two years.

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- (ii) the rotation of a person through alternate periods of Titular and Associate Membership beyond a total of twelve years, whether these are consecutive or not. The extension shall be for a period of two years.
- (iii) membership in any capacity, other than that of National Representative, of one or more Commissions of a Division or of different Divisions beyond a total of twelve years, whether these are consecutive or not. The extension shall be for a period of two years.
- (iv) the replacement by a Division President between General Assemblies of a Member of a Commission.

The number of Titular Members, Associate Members, and National Representatives of each Commission shall not exceed eight. Titular Members, Associate Members, and National Representatives shall be authorities in the field covered by the Commission and shall be so recognized by their Adhering Organizations. Before submitting their names for election, the Chair of the Commission shall explain to them their duties, and they shall agree to undertake them if they are elected.

The choice of a Titular Member or an Associate Member by a Commission may take place either during a meeting of the Commission or by correspondence. The nomination shall then be submitted via the Division Committee to the Secretary General via the Secretariat for approval by the Bureau or Executive Committee. The Adhering Organization with which the Titular Member or Associate Member is connected shall be notified of the appointment.

B3.305 National Representatives may be nominated by the various Adhering Organizations and approved by the Commission; such representation shall not be permitted if the Commission already has a Titular or Associate Member from that Organization, unless exceptional circumstances are established and special permission is granted by the Bureau. Such representation shall lapse at the conclusion of the next General Assembly unless the person is re-nominated by his Adhering Organization and re-approved by the Commission. Reappointment of National Representatives beyond a total of twelve years service, whether these are consecutive or not, requires that special circumstances should be established by the

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Adhering Organization. The names of these National Representatives shall be communicated to the Secretary General via the Secretariat by the Chair of the Commission concerned.

- B3.306 The Division President shall be *ex officio* a member of all the Commissions attached to the Division.
- B3.307 A Commission may propose to the Division Committee the establishment of subcommittees with responsibility for designated functions within the scope of the Commission.
- B3.308 A meeting of a Commission can be financed only upon authorization of the Treasurer after recommendation by the appropriate Division Committee.
- B3.309 The Chair of a Commission shall each year present to the Division Committee a written report on the activities of the Commission, outlining the results obtained and indicating any new work that is to be undertaken.
- B3.310 All reports of Commissions shall be forwarded via the Division Committee to the Bureau, and then submitted to the Council if required by Bylaw 2.11.

B4 Associated Organizations (cf. Statute 13)

- B4.1 The Bureau, having satisfied itself that the claims and activities of an organization seeking to become an Associated Organization of the Union are in accordance with Statute 13, may recommend acceptance to associate membership by the Council provided that:
- (i) the period of existence of the applicant organization has been adequate to establish its stability and the quality of its activities;
 - (ii) the statutes and bylaws of the organization do not conflict with the Statutes and Bylaws;
 - (iii) the activities of the organization neither duplicate nor are in conflict with the legitimate functions of the Union, such as standardization, codification, or other matters of scientific importance.
- B4.2 The Union shall invite Associated Organizations to send representatives to its General Assembly and to relevant meetings of IUPAC bodies when joint sponsorship of meetings or other joint activities may be discussed.
- B4.3 The Union shall offer assistance in publicizing meetings of Associated Organizations.

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B4.4 The Union shall present to Associated Organizations such particulars as are decided by the Officers of the Union to be relevant to joint activities.

B4.5 The continuation of membership of each Associated Organization shall be reviewed by the Council every four years.

B5 Adoption, Changes, and Interpretation of Bylaws

B5.1 The Bylaws shall take effect immediately after their adoption by the Council.

B5.2 Changes in the Bylaws may be proposed by the Bureau or by any Adhering Organization. Notice of changes so proposed shall reach the Secretary General via the Secretariat in writing at least six months before the meeting of the Council at which the proposal is to be considered. A change shall be made only if more than one-half of the total number of votes assigned to the Adhering Organizations are cast in favor of such a change.

B5.3 In all cases where the bylaws are not clear or do not give a decision, the President's Ruling shall be decisive.

Recommendations on Nomenclature and Symbols

Robin K. Harris, Edwin D. Becker, Sonia M. Cabral de Menezes, Pierre Granger, Roy E. Hoffman and Kurt W. Zilm; *Further conventions for NMR shielding and chemical shifts (IUPAC Recommendations 2008)*; Vol. 80, Issue 1, p. 59

Ernö Lindner and Yoshio Umezawa; *Performance evaluation criteria for preparation and measurement of macro- and microfabricated ion-selective electrodes (IUPAC Technical Report)*; Vol. 80, Issue 1, p. 85

Werner Kördel, Hans Egli and Michael Klein; *Transport of pesticides via macropores (IUPAC Technical Report)*; Vol. 80, Issue 1, p. 105

Peter Mahaffy, Anthony Ashmore, Bob Bucat, Choon Do and Megan Rosborough; *Chemists and "the public": IUPAC's role in achieving mutual understanding (IUPAC Technical Report)*; Vol. 80, Issue 1, p. 161

Mahdi Balali-Mood, Pieter S. Steyn, Leiv K. Sydnnes and Ralf Trapp; *Impact of scientific developments on the Chemical Weapons Convention (IUPAC Technical Report)*; Vol. 80, Issue 1, p. 175

W. Mormann and K.-H. Hellwich; *Structure-based nomenclature for cyclic organic macromolecules (IUPAC Recommendations 2008)*; Vol. 80, Issue 2, p. 201

Heinz Gamsjäger, John W. Lorimer, Pirketta Scharlin and David G. Shaw; *Glossary of terms related to solubility (IUPAC Recommendations 2008)*; Vol. 80, Issue 2, p. 233

Jonathan Brecher; *Graphical representation standards for chemical structure diagrams (IUPAC Recommendations 2008)*; Vol. 80, Issue 2, p. 277

Michael Schwenk, Reinhild Klein and Douglas M. Templeton; *Lymphocyte subpopulations in human exposure to metals (IUPAC Technical Report)*; Vol. 80, Issue 6, p. 1349

Frederick P. Schwarz, Timm Reinisch, Hans-Jürgen Hinz and Avadhesh Suroliya; *Recommendations on measurement and analysis of results obtained on biological substances using isothermal titration calorimetry (IUPAC Technical Report)*; Vol. 80, Issue 9, p. 2025

Andrey Yerin, Edward S. Wilks, Gerard P. Moss and Akira Harada

Nomenclature for rotaxanes and pseudorotaxanes (IUPAC Recommendations 2008); Vol. 80, Issue 9, p. 2041

Stanisław Penczek and Graeme Moad; *Glossary of terms related to kinetics, thermodynamics, and mechanisms of polymerization (IUPAC Recommendations 2008)*; Vol. 80, Issue 10, p. 2163

M. Mosihuzzaman and M. Iqbal Choudhary; *Protocols on safety, efficacy, standardization, and documentation of herbal medicine (IUPAC Technical Report)*; Vol. 80, Issue 10, p. 2195

Michael Schwenk, Reinhild Klein and Douglas M. Templeton; *Immunological effects of mercury (IUPAC Technical Report)*; Vol. 81, Issue 1, p. 153

Giovanni Balducci, Andrea Ciccioli, Giovanni de Maria, Fiqiri Hoda and Gerd M. Rosenblatt; *Teaching high-temperature materials chemistry at university (IUPAC Technical Report)*; Vol. 81, Issue 2, p. 299

Dick J. Dijkstra; *Guidelines for rheological characterization of polyamide melts (IUPAC Technical Report)*; Vol. 81, Issue 2, p. 339

Recommendations on Nomenclature and Symbols

Robert F. T. Stepto; *Dispersity in polymer science (IUPAC Recommendations 2009)*; Vol. 81, Issue 2, p. 351

Alain Berthod, Tatyana Maryutina, Boris Spivakov, Oleg Shpigun and Ian A. Sutherland; *Countercurrent chromatography in analytical chemistry (IUPAC Technical Report)*; Vol. 81, Issue 2, p. 355

Kenneth N. Marsh, Joan F. Brennecke, Robert D. Chirico, Michael Frenkel, Andreas Heintz, Joseph W. Magee, Cor J. Peters, Luis Paulo N. Rebelo and Kenneth R. Seddon; *Thermodynamic and thermophysical properties of the reference ionic liquid: 1-Hexyl-3-methylimidazolium bis[(trifluoromethyl)sulfonyl]amide (including mixtures). Part 1. Experimental methods and results (IUPAC Technical Report)*; Vol. 81, Issue 5, p. 781

Robert D. Chirico, Vladimir Diky, Joseph W. Magee, Michael Frenkel and Kenneth N. Marsh; *Thermodynamic and thermophysical properties of the reference ionic liquid: 1-Hexyl-3-methylimidazolium bis[(trifluoromethyl)sulfonyl]amide (including mixtures). Part 2. Critical evaluation and recommended property values (IUPAC Technical Report)*; Vol. 81, Issue 5, p. 791

Monica Nordberg, Douglas M. Templeton, Ole Andersen and John Henderson Duffus; *Glossary of terms used in ecotoxicology (IUPAC Recommendations 2009)*; Vol. 81, Issue 5, p. 829

Eli Breuer, Mukund Shankar Chorghade, János Fischer and Gershon Golomb; *Glossary of terms related to pharmaceuticals (IUPAC Recommendations 2009)*; Vol. 81, Issue 5, p. 971

Máximo Barón, Karl-Heinz Hellwich, Michael Hess, Kazuyuki Horie, Aubrey D. Jenkins, Richard G. Jones, Jaroslav Kahovec, Pavel Kratochvíl, W. Val Metanomski, Werner Mormann, Robert F. T. Stepto, Jiří Vohlídal and Edward S. Wilks; *Glossary of class names of polymers based on chemical structure and molecular architecture (IUPAC Recommendations 2009)*; Vol. 81, Issue 6, p. 1131

Robert C. Barber, Heinz W. Gäggeler, Paul J. Karol, Hiromichi Nakahara, Emanuele Vardaci and Erich Vogt; *Discovery of the element with atomic number 112 (IUPAC Technical Report)*

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IUPAC DIVISION I: PHYSICAL AND BIOPHYSICAL CHEMISTRY**REPORT TO COUNCIL for the biennium 2008-2009**

Michel J. Rossi
President

May 2009

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I. EXECUTIVE SUMMARY AND HIGHLIGHTS

The Physical and Biophysical Chemistry Division (PBCD) has continued its activities in both physical and biophysical chemistry according to the charter the division. The composition of the Division Committee is chosen to cover all different areas of physical and biophysical chemistry and identify areas to which the division can make new contributions.

For the biennium 2008-09, the Division has 24 projects running, 8 nearing completion or recently completed, and 7 on-going interdivisional. This total compares with 26 for the 2006-07 and 28 for the 2004-05 biennium, representing a slight reduction as the Division continues to focus its efforts on fewer but better funded projects. The erosion of the US \$ may also explain some of the decrease. These projects encompass different areas of physical and biophysical chemistry. Each project has a monitor who is a member of the Division Committee and is responsible for overseeing its running, whether or not it adheres to the timeline and helping to solve any difficulties which may arise. Many of the projects have resulted in publications even before they are completed, and new and on-going projects have been briefly described in articles in Chemistry International. A cumulative list of publications is presented in Section IV of this report.

Details of the current slate of projects are to be found in Section III of this report.

The focal points of the activities of Division I for the biennium 2008-09 are as follows:

(1) **The publication of the third edition of the Green Book** (project no. 110/2/81; <http://www.iupac.org/web/ins/110-2-81>), resulting from the activities of the Subcommittee on Symbols, Terminology and Units in Physical Chemistry, was published just on time for the GA in Torino (August 2007) and was met with great acclaim with 782 copies sold as of April 2009. This long-term effort has to be understood as a service to the chemistry community at large as the royalties benefitting IUPAC (10% of net revenue from book sales) do not cover the investment in the project by far. Building on this success, Division I supports two follow-on projects: (a) the underwriting of a **student edition** of the **Green Book** (project no. 2007-032-1-100; <http://www.iupac.org/web/ins/2007-032-1-100>), and (b) the **preparation of the translation** of the **Green Book** into six languages (German, French, Italian, Turkish, Japanese, Portuguese) (project no. 2008-007-3-100; <http://www.iupac.org/web/ins/2008-007-3-100>). IUPAC does not support the translation per se, only the preparations in order to minimize errors in translation. This guarantees a virtually errorless translation and transcription of the symbols, formulas and units into a foreign language. Other languages into which the **Green Book** should be translated in high priority would be Spanish, Chinese and Russian. It remains to be seen to what extent the web may be involved in the dissemination of the content of the **Green Book**, either in its full version or as an abridged version of the forthcoming student edition.

(2) **Creation and Maintenance of Physical and Biophysical Data Bases** that are **critically evaluated** are seen as one of the core activities of IUPAC. Much has been said in the past about the difference between a mere compilation (collation) of data and a critically evaluated data base comprising rational recommendations that are discussed and decided upon by a recognized international panel of experts. In the following "Data Base" is understood as being critically evaluated because in our experience it is this kind of data that the user increasingly demands. These activities are seen as central to the activity of Division I, especially in the long term. Five examples may be given: (a) the Atmospheric Chemistry

data base spanning all atmospheric processes except in the liquid phase (cloud and fog chemistry) (original project no. 141/3/89 (<http://www.iupac.org/web/ins/141-3-89>), follow-on projects no. 1999-037-2-100 (<http://www.iupac.org/web/ins/1999-037-2-100>) and following, the latest one being 2007-001-2-100 (<http://www.iupac.org/web/ins/2007-001-2-100>)) performed by the Subcommittee on the Evaluation of Kinetic Data for Atmospheric Chemistry, (b) the H₂O spectroscopic data base regarding line positions and line strengths of all known isotopomers of H₂O (project no. 2004-035-1-100 (<http://www.iupac.org/web/ins/2004-035-1-100>)), (c) the Comparison of Experimental and Theoretical Heats of Formation of Free Radicals and Reactive Transients (project no. 140/9/97 (<http://www.iupac.org/web/ins/140-9-97>), 2000-013-1-100 (<http://www.iupac.org/web/ins/2000-013-1-100>)), (d) Evaluated Kinetic Data for Combustion Modeling (project no. 140/6/93 (<http://www.iupac.org/web/ins/140-6-93>), 2005-036-1-100 (<http://www.iupac.org/web/ins/2005-036-1-100>)) and the Standard Potentials of free radicals in solution (project No. 2001-015-1-100 (<http://www.iupac.org/web/ins/2001-015-1-100>)). In terms of practical needs by the chemistry community several data bases might be of interest some time in the near future, among them a data base on the kinetics of atmospheric processes in aqueous solution for the description of cloud and fog processing chemistry. One should not forget that this type of data base is at the origin of complex climate simulation schemes performed within the framework of the renowned Fourth Assessment Report of IPCC FAR 2007: <http://www.ipcc.ch/ipccreports/ar4-syr.htm>).

Other suggestions of future creations of critically evaluated data bases might be the processing kinetics data base for electronic materials, both in the gas as well as in the condensed phase, and planetary and/or interstellar chemistry including kinetics and thermodynamics (at low to ultralow temperatures) in order to foster our understanding of extraterrestrial planetary phenomena. This kinetic and thermodynamic information will enhance our understanding of potential run-away phenomena in the context of global change that may threaten the survival of our planet in the future. In conjunction with the **management** of such **data bases** the question regarding the servicing of the data (updating the information, adding new processes, expanding the scope in response to new research) may be posed. IUPAC would be well advised to find a definitive answer within a few years in order to preserve the heritage for generations of chemists to come and to protect the considerable effort and investment made by IUPAC. New ways to operate must be found for new ways to deal with easily accessible albeit prolific information assembled in data bases.

(3) For the foreseeable future Division I is motivated to tackle **Energy-related Questions** and in fact, already has made inroads into this technologically important field. Several aspects are within reach and expertise of Division I: (a) Energy Storage; (b) Hydrogen Economy (see for example 2008-006-3-100 (<http://www.iupac.org/web/ins/2008-006-3-100>)); (c) Materials Chemistry and Corrosion Issues; (d) Alternative fuels and biofuels, some of the topics perhaps in collaboration with Div III (Organic/Green chemistry) and VI (Environment). These subjects touch upon technologies requiring a chemistry background to answer relevant questions on the molecular level. Typical Div I subjects such as electrochemistry, surface chemistry, kinetics, thermodynamics and solid state chemistry are all part of the solution to technological problems in the energy-related field. Monographs authored by multiple experts offering detailed views into a field and describing the state-of-the-art provide a rapid and handy entry to complex fields of expertise. Examples are the IUPAC (book) projects coordinated by T. Letcher in the field of energy (project no. 2007-015-2-100

(<http://www.iupac.org/web/ins/2007-015-2-100>): Future Energy: Improved, sustainable and clean options for our planet) and climate change (project no. 2007-050-2-600: Climate and global change: observed impacts on planet earth (<http://www.iupac.org/web/ins/2007-050-2-600>)). **Materials chemistry** is an emerging and important area in Material Sciences (and has remained so for some time) but has so far not found a “home” within IUPAC. Division I is prepared to host and nurture this “orphan” for the time being.

(4) Division I is acutely aware that many **solutions to complex problems** are only accessible through an **interdisciplinary or transdisciplinary approach**. Albeit supported by IUPAC in a significant way through its Project Committee (PC) it turns out that such multidisciplinary projects have several hurdles to overcome in practice, not the least of which is the way such a project is perceived by the various concerned divisions. Often, funding levels agreed by the “interested” divisions are seriously deficient, time lines are unilaterally extended, and priorities and due diligence are left wanting. It is suggested to commit a substantial amount of financial power to **problem-oriented questions** that often evidently transcend the classification into traditional disciplines. In addition to a vertically oriented structure in terms of Divisions following the traditional classification, a horizontal (orthogonal) layer of management dealing with cross-disciplinary questions could co-exist naturally without interference by the classically organized divisions. This would introduce a 2-D “maze” of management structures optimally suited to respond to the challenge of cross-disciplinarity. Global change is a vivid example of a combination of problems, addressing both “classical” disciplines as well as interdisciplinary approaches. It is clear that no single (“disciplinary”) approach affords a satisfactory solution, only concerted action in all compartments may lead the way to a viable solution. Although this has been known for some time now, the science structure only slowly and hesitantly resolves itself to address these overarching issues.

(5) **Strengthening of industrial participation** in problem-solving where technology matters. To the extent that chemistry will be part of the solution of a complex technological problem, for example energy-related problems in future mobility in a sustainable world it is proposed to actively seek the involvement of the corresponding industry. In some cases it may be an industry other than chemical depending on the problem. It seems clear that industry participation in projects will be different from the open structures in academia as far as keeping key information confidential. However, it may well turn out to be a win-win situation for the industry/academia collaboration: on the one hand, industry has an international partner with an independent opinion or approach, on the other hand IUPAC becomes involved hands-on in a practical realization of theoretical concepts.

The Division remains active with its chemical thermodynamics component, in part through its link with the International Association of Chemical Thermodynamics [IACT; <http://iactweb.org/>] which is an Associated Organisation of IUPAC since 2003. The IACT held its biennial meeting, the 20th IUPAC International Conference on Chemical Thermodynamics, in Warsaw during August 2008 with symposia covering a variety of topics related to different phases, theoretical and biophysical aspects. The International Society of Electrochemistry is also an Associated Organization of IUPAC with a direct link to members of the Division Committee, and has had a direct input in areas such as electrochemical terminology and nomenclature and in one of the division projects.

After the name change from Physical Chemistry Division to Physical and Biophysical Chemistry Division in December 2001 a lot of efforts were spent to include biophysical aspects in Div I activities. Seven years in hindsight these **biophysical aspects are less well represented than desired**, a fact that also is reflected in the low number of biophysically inspired IUPAC projects that Division I previously supported or currently supports. Although some progress was made in the last (2006-2007) and current biennium (2008-2009) in this regard, there still remains a lot to be done in order to fully justify the name of the Division.

The Advisory Subcommittee currently consists of 48 distinguished scientists and engineers, some of whom are drawn from industry and who cover all the areas of physical chemistry and related areas of interest. The members of the subcommittee are all IUPAC Fellows. The role of the subcommittee is to suggest and identify areas that need to be dealt with by the Division, drawing attention to the need for experimental protocols in specific subject areas, taking part in IUPAC conferences, and acting as expert referees for IUPAC proposals. The immediate benefit to the Division from the subcommittee lies in the rapid response for assessment of project proposals in the range of a few weeks rather than months.

The division has representatives on two commissions of IUPAP. The first is on Commission on Statistical Physics to reflect the strong relation between statistical physics and physical and biological chemistry (<http://www.iupap.org/commissions/c3/members.html>). The second is on Commission on Symbols, Units, Nomenclature, Atomic Masses, and Fundamental Constants (SUNAMCO). This representation should be maintained in the near future in order to keep the communication channels open in areas of mutual concern.

As stated in previous reports from the Division, it is important to realise that the responsibility for leading and guiding the Division and to encourage and support its growing activities lies on the shoulders of a relatively few individuals, who also have heavy responsibilities in their work place. They essentially undertake IUPAC work for public service and service to their profession. The network created by the establishment of our Advisory Subcommittee has been helpful in this regard, the membership of which is reviewed biannually.

There are three concerns that have been brought to the attention of the IUPAC Bureau by the Division president on the occasion of one of its recent meetings and which will briefly be mentioned here:

- (a) The maintenance of Data Bases. The last updates should not be older than six months. This necessitates technical updating on a semi-regular basis.
- (b) The choice of the proper scientific journal for the publication of Technical Reports and reporting of scientific results obtained in the course of an IUPAC project. In special cases the use of a journal other than Pure and Applied Chemistry may be justified.
- (c) The sharing of reviewing authority for papers to be published between ICTNS and the corresponding division.

II. ACTIVITIES OF DIVISION I WITHIN THE SIX GOALS IN THE IUPAC STRATEGIC PLAN

The activities of Division I in relation to the six long-range goals are as follows:

a. IUPAC will provide leadership as a worldwide scientific organization that objectively addresses global issues involving the chemical sciences.

Scientific leadership is evident through all the Division's projects through the Recommendations which are being established and the Technical Reports which are produced. The critically evaluated databases which have been created and are being maintained so far by the original task group members are unique and serve as a resource for all colleagues working in this field, being a good example of how IUPAC has taken a leading role. Citing just two examples it is the atmospheric chemistry data base (project 1999-037-2-100 (<http://www.iupac.org/web/ins/1999-037-2-100>)) and the water vapour spectroscopy data base (project 2004-035-1-100 (<http://www.iupac.org/web/ins/2004-035-1-100>)) that serve as a resource for the regularly updated global climate predictions performed by the IPCC (Fourth Assessment Report of the Intergovernmental Panel on Climate Change under the auspices of the UN: <http://www.ipcc.ch/ipccreports/ar4-syr.htm>). Additional examples are provided by combustion chemistry and reactive transients such as free radicals.

The Commission on Physicochemical Symbols, Terminology, and Units of Division I continues to exert a strong role through the publication of the 3rd edition of the Green Book in August 2007 which has been well received. Its influence will undoubtedly continue to be very significant in education, research, industry, and publishing throughout the world. This activity has involved the Division consistently during the last ten years, and currently there are significant follow-on projects underway such as a Green Book student edition, web-version and various translation projects that need intellectual support by the Committee.

Leadership is also seen through the cooperation with the Committee of Chemical Education, and a joint project (project 2006-050-3-100 (<http://www.iupac.org/web/ins/2006-050-3-100>)) has recently been commenced, which deals with innovative ways to present experiments to undergraduates in a way which is applicable in many countries in a harmonised way and needing only modest resources.

The Division is represented on the Green Chemistry Subcommittee which addresses the important points of sustainable chemistry which is of increasing concern to society as a whole, and not just to the chemical community.

b. IUPAC will facilitate the advancement of research in the chemical sciences through the tools that it provides for international standardization and scientific discussion.

This is one of the core activities of the Division. The majority of the Division's projects are geared towards international standardization in terms of standard nomenclature, terminology and formats and standard methods for presentation of data. All the projects involve extensive scientific discussion and promote the advancement of chemical sciences through recommendations, technical reports or books. In some cases regularly updated websites have been created in addition to hard copy documentation. The example of the atmospheric chemistry data base (IUPAC Subcommittee for Gas Kinetic Data Evaluation) may be cited (<http://www.iupac-kinetic.ch.cam.ac.uk/>).

c. IUPAC will assist chemistry-related industry in its contribution to sustainable development, wealth creation, and improvement in the quality of life.

Its projects, particularly in the area of thermodynamics, promote connections to chemistry-related industry via workshops and communications among individuals. Several projects involve members of the task force from industry and the Division is represented on COCI.

The Division is also represented on the Green Chemistry Sub-Committee and was actively involved in the organisation of the recently-established series of IUPAC Green and Sustainable Chemistry Conferences.

IUPAC will foster communication among individual chemists and scientific organizations, with special emphasis on the needs of chemists in developing countries.

The members of the Division Committee and Advisory Sub-Committee of Division I are taken from a broad geographical base as well as topical areas within Physical and Biophysical Chemistry and seek to identify and address the needs of the world-wide chemistry community. The members strive to hand out all the tools in a fair and equal way which can help them in their research and communication with each other, by providing a common language and common conventions, through the projects which the division has and is carrying out. The division sponsors conferences all over the world, which includes the needs of chemistry and applied chemistry in developing countries.

Additionally, the Division fosters communications with other associations such as the International Association of Chemical Thermodynamics and the International Society of Electrochemistry, both of which are Associated Organizations of IUPAC. The former is directly associated with the biannual IUPAC Conferences on Chemical Thermodynamics.

The division has a representative on the Green Chemistry Subcommittee which is concerned with the important problem of green and sustainable chemistry, and which includes the particular needs of developing countries.

d. IUPAC will utilize its global perspective and network to contribute to the enhancement of chemistry education, the career development of young chemical scientists, and the public appreciation of chemistry.

The Division has always welcomed Young Observers and encourages them to become involved in Division activities. Several of the Division Committee members in the current and last biennia were recruited in this way, and we are looking forward to welcome additional Young Observers for this coming GA. The Division's Advisory Subcommittee seeks to redress any remaining imbalances. Chemical education is a concern in all the projects involving recommendations for terminology, data presentation and in the publishing of books and monographs. Joint projects with the CCE are important for standardising protocols for experimentation. The public appreciation of chemistry is inherent in most of the Division's activities and will certainly get a boost during the coming biennium with the preparations for the International Year of Chemistry in 2011.

e. IUPAC will broaden its national membership base and will seek the maximum feasible diversity in membership of IUPAC bodies in terms of geography, gender, and age.

The Division has actively sought to have a membership in its committee which reflects IUPAC as a global organisation in terms of geography, gender and age. In the current and last

biennium these efforts have borne more fruit than previously and so this has been more successfully achieved. Twenty one countries are represented as TM's AM's and NR's of Division I. Nevertheless, it remains a difficulty to attract interested younger colleagues, who are often at crucial points in their career, to agree and to be able to devote time to IUPAC activities.

In their totality, the projects of Division I embody all of the six long-range goals of IUPAC. Some projects support certain goals more strongly than other projects depending on the nature of the project.

III. PROJECTS WITH BRIEF PROGRESS REPORTS

In contrast to the more general goals of IUPAC as a whole (see Section II) the specific objectives of the Physical and Biophysical Chemistry Division, as stated on the Division web page (<http://www.iupac.org/web/ins/100>), are to organize and promote the international collaboration between scientists in physical and biophysical chemistry and related fields in order to

- address problems and formulate recommendations on nomenclature, symbols, units, terminology and conventions in physical and biophysical chemistry, disseminate the recommendations, encourage their translation as well as monitor their acceptance by the chemical community;
- establish and stimulate the use of methodologies, standards and reference materials in physical and biophysical chemistry;
- encourage the compilation and documentation of critically evaluated physical chemical data;
- recognize new developments in physical and biophysical chemistry and its fields of applications; and
- promote future oriented activities important for the contribution of physical and biophysical chemistry to science and technology and to the needs of the world community.

This section contains the list of all projects underway together with their current brief progress reports. These include the current Projects, the projects completed during the current biennium and/or the ones nearing completion, the other interdivisional projects and the single project in review at the time of writing this report. It is strongly recommended to consult the corresponding website of the Division for more detailed information (<http://www.iupac.org/indexes/Projects/bodies/100>).

NOTA BENE: The projects with an asterisk * in their titles are interdivisional.

A. CURRENT PROJECTS

1999-037-2-100 – [\(Cox\) Evaluation of kinetic data for atmospheric chemistry](#)

The objectives of this project are to enhance the accessibility and availability of the evaluated kinetic database, to develop and implement a way to update material on the website to include various linkages and the creation and maintenance of a mirror website at IUPAC in North Carolina at the request of the IUPAC Secretariat.

By the end of 2006 the data base was migrated to the Website (<http://www.iupac-kinetic.ch.cam.ac.uk/>) and comprises now more than 1000 data sheets including gas phase, photochemical and heterogeneous reactions of atmospheric interest. An additional Subcommittee member (Wahid Mellouki, Orléans) joined the group before the imminent retirement of several colleagues in the near future. The work of the panel continues along two lines: (a) continuous update of the whole data base whereby all panel members are assigned several tens of reactions, (b) new organisation and representation of the heterogeneous data base that will also include recommendations. Before the

heterogeneous part was a compilation rather than an evaluation. Four panel members are heavily involved in this effort (R. A. Cox, J. Crowley, M. Ammann and M. J. Rossi). The fate of the mirror site in North Carolina is uncertain at this time after having been in operation for several years. It is currently not accessible from the home page.

The full panel met in January 2009 in Cambridge in order to discuss ordinary updates of existing data sheets, additional data sheets on heterogeneous reactions as well as a hecatomb of new data sheets in relation to gas phase oxidation of organic and biogenic hydrocarbons. This project seems on track and will continue for some time until the migration of all data sheets to the web will have been completed. The project of migrating the data base on the web proper is terminated and a final report including a list of publications has been submitted (http://www.iupac.org/projects/1999/1999-037-2-100_final-report_071218.pdf). Dr. Glenn Carver of the Center for Atmospheric Science in Cambridge/UK will remain available to offer technical help for the incorporation of the remaining data sheets as they may come along. It is important to make the distinction between the migration of the data base proper (see above project and its one-time extension project) and the on-going projects of the same group that enable the completion of the data base in view of on-going research in this area (project 2007-001-2-100 (<http://www.iupac.org/web/ins/2007-001-2-100>)). This flag-ship project incurs on average 400 visits of its website per week, which is a respectable success that coincides with its ten-year anniversary of providing atmospheric chemistry data on the web. A list of publications resulting from this project reaching further back is also available (http://old.iupac.org/divisions/I/I.4/141_publications.html).

2001-015-1-100 – (Stanbury) [Standard potentials of free radicals*](#)

The aim of this project is to evaluate critically the standard potentials of inorganic and organic radicals in the literature, to recommend values, and to identify reduction potentials for further experimentation. There are two compilations which are now both more than ten years old and in need of updating. The project has compiled new data that has been published since 1989, set up a thermodynamic network and develop in this fashion values for standard potentials that are internally consistent. Data sheets have been prepared for each radical as found in the JANAF Tables.

One set of evaluations and eight summary tables have been prepared, including: Inorganic Standard Potentials, Organic Standard Potentials, Gibbs Energies of Formation for Radicals, Inorganic Radical pK_a 's, Hemicolligation Equilibrium Constants, Inorganic Radical Equilibrium Constants and Radical Henry's Law Constants,. Linked to these tables are individual evaluation sheets which are being prepared.

One particularly challenging task is to obtain a least-squares optimisation for a thermochemical network that links the properties of about 50 radicals, primarily inorganic in a manner that recalls Active Thermochemical Tables (ATcT) of Ruscic and coworkers. .A no-cost extension to June 30 2009 has been requested and granted.

2001-028-1-100 – (Stoynov) [Electrochemical impedance spectroscopy - terminology, nomenclature and data exchange formats](#)

The aim is to summarize, standardize and disseminate the nomenclature of fast developing new fields of application of electrochemical impedance spectroscopy. It seeks to standardize conventions of formats for experimental data exchange and analysis.

The main work has been completed and the paper is now written for two of the three items, namely the aspects of nomenclature and data exchange formats. Terminology is still under discussion. Reductions in the size of the first draft are still being finalised. The first draft of the paper for the terminology or definitions aspect resulted in 70 pages, which is currently being reduced to about 20 pages.

2003-006-1-100 – (Harris) [NMR chemical shifts: updated conventions*](#)

The objectives are to update IUPAC Recommendations 2001: NMR Nomenclature, Nuclear Spin Properties and Conventions for Chemical Shifts [*PAC 73, 1795 (2001)*] by addressing several issues in setting standards for chemical shifts, including temperature variation of the NMR signals of reference compounds, the use of magic-angle spinning for both solutions and solids, solvent effects, and magnetic susceptibility corrections.

Recommendations are given for reporting chemical shifts under most routine experimental conditions and for quantifying effects of temperature and solvent variation, including the use of magnetic susceptibility corrections and of magic-angle spinning (MAS).

This document provides the first IUPAC recommendations for referencing and reporting chemical shifts in solids, based on high-resolution MAS studies. Procedures are given for relating ^{13}C NMR chemical shifts in solids to the scales used for high-resolution studies in the liquid phase. The notation and terminology used for describing chemical shift and shielding tensors in solids is reviewed in some detail, and recommendations are given for best practice.

This project has been completed and the IUPAC Recommendations have been published in PAC (*Pure Appl. Chem.* **80(1)**, 59-84, 2008). These Recommendations have been reprinted in several places in the scientific literature (see project website <http://www.iupac.org/web/ins/2003-006-1-100>). Several publications resulting from project work have appeared in the recent literature whose references may be found on the same website.

2003-024-1-100 – (Ruscić) [Selected free radicals and critical intermediates: thermodynamic properties from theory and experiment](#)

The objective of this project activity is the compilation and critical evaluation of published thermodynamic properties, including the computation of accurate thermo-chemical data for selected free radicals that are of importance in atmospheric and combustion chemistry.

In September 2006 a no-cost extension for this project was requested from IUPAC in order to compensate for the long delay of publication of volume I (*J. Phys. Chem. Ref. Data* **2005**, 34(2), 573-656) of the projected three volumes on the thermochemistry of free radicals. This no-cost extension until September 30 2007 was granted in November 2006. The published article has been cited 101 times (to the date of this writing) and clearly demonstrates a need for critically evaluated thermochemistry of reactive transients. A meeting of the full panel (except R. Janoschek and Phil Westmoreland) was held in Budapest on 9 and 10 December 2006 in order to resume the activity and regain the initial momentum. Several free radical data sheets were finalized and discussed, however, it

seems that several data sheets are still missing for submission. From the Website of the panel (<http://atct.anl.gov/IUPAC/assignments.html>) that was accessible until a few months ago it appears that 7 free radical data sheets are ready for submission. The website also displays two additional sections, one for “perennial references” and the other for “project publications” of the group. It should be mentioned that the thermochemistry of several smaller free radicals are being calculated using sophisticated methods in parallel to the compilation of experimental and theoretical literature results. This dual methodology is somewhat delaying the compilation of both experimental and theoretical results for the corresponding free radicals. However, it seems that the original plan of submitting the data sheets of all 32 free radicals of set I will not be on schedule as of May 2009. Therefore, closure of this project has been requested with the option of submitting a new proposal under new leadership.

2003-036-2-100 – (Corti) [Thermodynamics and non-equilibrium criteria for development and application of supplemented phase diagrams](#)

The aim of the project is to establish rational links between thermodynamic aspects of phase diagrams supplemented by the non equilibrium curve of the glass transition temperature for mixtures of water with vitrifying agents used in the cryo- and dehydro-preservation of natural (foods, seeds, etc.) and synthetic products (pharmaceuticals).

The update and literature classification on supplemental phase diagrams for relevant aqueous systems for food and pharmaceuticals has been completed. The initial critical evaluation of this database to includes the shortcomings of current practice. The information produced so far is available on http://www.iupac.org/publications/cd/phase_diagrams/index.htm. A technical report will be prepared on how to construct supplemented phase diagrams when there is not enough experimental information on a given system. A second technical report will deal with the use of such diagrams for different particular cases. The final review of the drafts were supposedly performed at the task group meeting in September 2007. A no-cost extension to April 30 2009 has been granted.

2004-010-3-100 – (Ruzicka) [Heat capacity of liquids: critical review and recommended values for liquids with data published between 2000 and 2004](#)

The aims are to update and to extend two publications that contained recommended data on liquid heat capacities for almost 2000 mainly organic compounds, "Heat Capacity of Liquids: Critical Review and Recommended Values", and its "Supplement I" by M. Zábanský, V. Ruzicka, V. Majer (1st publication only), and E.S. Domalski published in *Journal of Physical and Chemical Reference Data* in 1996 and 2001. The publications were the product of IUPAC Projects 121/10/87 (<http://www.iupac.org/web/ins/121-10-87>) and [2000-031-1-100](http://www.iupac.org/web/ins/2000-031-1-100) (<http://www.iupac.org/web/ins/2000-031-1-100>).

Updating the databases of experimental data has been completed. New data on calorimetrically measured liquid heat capacities of compounds having their melting temperature below 573 K published in 193 primary literature sources between 1999 and 2006 were entered into computer readable databases.

Compounds were divided into several families (see the previous report). New data for 411 compounds were entered, out of them 202 compounds being new additions, not covered in

the previous work. That represents 479 new data sets, each data set consisting of a table of heat capacity and the corresponding temperature. The new additions include data for 3 inorganic compounds and for 50 ionic liquids. Most of the new data cover organic substances (408 compounds, 202 of them new additions).

By November 2007 the critical assessment of data as well as the correlation has been performed. By the end of March 2008 a manuscript has been submitted to *J. Phys. Chem. Ref. Data* for publication. In addition, an extension of the estimation method for heat capacity of liquids as a function of temperature utilizing the updated database of recommended data (Kolská, Z.; Kukal, J., Záborský, M., Ružicka, V. Estimation of the Heat Capacity of Organic Liquids as a Function of Temperature by a Three-Level Group Contribution Method) has been submitted for publication to *Ind. Eng. Chem. Res.*

2004-026-2-100 – (Arunan) [Categorizing hydrogen bonding and other intermolecular interactions](#)

The aims are to provide a modern definition of the hydrogen bond by examining comprehensively the various intermolecular interactions in the light of all current experimental and theoretical information. Hydrogen bonded systems both in gaseous and condensed phases in chemical and biological systems will be examined.

The Task Group met in Pisa, on 5-9 September 2005 in the form of a workshop. Eleven out of the fourteen task group members participated in the meeting. All task group members and 10 invited speakers gave talks in the area of hydrogen bonding and molecular interactions. A core-group met in Bangalore between 18 and 22 September 2006. with a one-day discussion including talks by the core-group members and some outside experts. The presentations are available on the web (<http://ipc.iisc.ernet.in/~arunan/iupac>). The final report is now being prepared. However, the subject proved to be controversial and the writing of a final report building on scientific consensus does not seem to be as straightforward as it looks owing to scientific disagreement among the task group members. A no-cost extension to December 31 2007 was granted. A report on the project was published in [Chem. Int. Mar-Apr 2007, p. 16](#)

2004-035-1-100 – (Tennyson) [A database of water transitions from experiment and theory](#)

The aims are a critical compilation, experimental determination and validation, and theoretical verification and extension of accurate frequency, energy level, line intensity, line width, and pressure effect spectral parameters of water and all of its major isotopologs.

The present collaborative effort is aimed at devising and constructing a database comprising, eventually, the complete linelist of all major isotopologs of water for studies at all temperatures. To achieve this goal this project will bring together researchers from around the globe who are active in studying the rovibrational spectra of water as well as experts in related data handling. The linelist to be compiled will include theoretical and (where available) experimental values of transition frequencies, intensities, and pressure broadening parameters for all major isotopologues. Emphasis will be on validation, comparisons, and test of the database. To achieve the stated goals of this project requires a concerted effort of experimental and theoretical chemists and physicists, spectroscopists, and computer scientists. The first paper was recently accepted by the *Journal of Quantitative Spectroscopy and Radiative Transfer*. Apparently, two further publications

are well underway, and a fourth paper is planned until the end of 2009 after which the task group will be terminated after a final meeting towards the end of the year.

2004-036-1-100 – (Sedlbauer) [Establishing recommended data on thermodynamic properties of hydration for selected organic solutes](#)

The objectives are to establish a database of thermodynamic properties of hydration for approximately 200 selected organic solutes at reference conditions of $T = 298.15$ K and 0.1 MPa and as a function of temperature and pressure up to the near critical region of water, to calculate from the reliable experimental data the values of hydration properties for solutes covering different molecular structures, to use the established database as a standard for testing and deriving new physico-chemical models and methods of molecular simulation to include the development of semi-theoretical prediction schemes for chemical engineering, environmental chemistry and geochemistry. A first draft paper concerning gaseous solutes has been prepared.

2006-021-2-100 – (Rouquerol) [Liquid intrusion and alternative methods for the characterization of macroporous solids](#)

The aim of this project is to analyse the various liquid intrusion techniques available today to assess the pore-size of materials (with special attention to the pores above 50 nm width), together with other alternatives, in order to provide (i) a critical and comparative appraisal and (ii) an appreciation about the ways which should be favoured and developed to solve the issue described hereafter.

A first step will be made towards satisfactory answers, by listing, examining and evaluating all trials already made in the field. These include the intrusion of safer liquids (other molten metals, water, organics...) and also the extension of the analysis of capillary condensation data up to the macropore range where, for technical reasons it was, until recently, considered inapplicable. In any case, the need of improvement and/or of alternative methods is urgent. By clarifying the situation, this project should help selecting and developing the most promising approaches. The issue concerns most scientists and industrialists working with porous materials (catalysts, pharmaceuticals, building materials, stones of ancient monuments to be restored or protected, adsorbents for chromatography, liquid purification or gas separation ...) and it needs an evaluation accepted and used by all persons involved all over the world.

It is planned to present the main conclusions in a conference in May 2008. From the financial records to date it seems that most of the action is yet to come.

2006-023-3-100 – (Alberty) [Recommendations for nomenclature and databases for biochemical thermodynamics](#)

The aim is to revise IUPAC Recommendations for Nomenclature and Tables in Biochemical Thermodynamics 1994*. Update these recommendations and increase their usefulness by providing more about computers and databases that have been developed since 1994. Describe the connection between the thermodynamics of enzyme-catalyzed reactions and the kinetics of enzyme-catalyzed reactions that is provided by Haldane relations. These Recommendations will be published as [IUPAC-IUBMB Joint Commission on Biochemical Nomenclature](#) (JCBN).

The Sections to be drafted include:

1 Preamble; 2 Introduction; 3 Basic Thermodynamics, 4 Thermodynamics of Chemical Reactions; 5 Legendre Transform to Introduce the pH as an Independent Variable in Biochemical Thermodynamics; 6 Equations for the Standard Transformed Formation Properties of a Reactant; 7 Thermodynamics of Biochemical Reactions; 8 Stoichiometry; 9 Standard Apparent Reduction Potentials for Half Reactions of Enzyme-Catalyzed Reactions; 10 Building a Database; 11 Relations Between Biochemical Thermodynamics and Biochemical Kinetics; 12 Nomenclature.

The first draft has been met with critical acclaim during 2008 such that more work is almost certainly going to be needed. A no-cost extension until December 1 2008 was granted.

2006-050-3-100 – (McQuillan) [Wet surface vibrational spectroscopy experiments*](#)

The aim of this project is to promote the application of wet surface vibrational spectroscopies (ATRIRS, SEIRAS, SERS) to problems in interfacial chemistry by selecting, testing, and disseminating to universities a collection of experiments suitable for undergraduate teaching laboratories and able to be performed with inexpensive equipment.

Undergraduate experiments in interfacial chemistry are presently dominated by measurements of macroscopic quantities such as surface tension and amount adsorbed when increasingly spectroscopic and microscopic data are presented in the corresponding lectures. IUPAC can take a lead in encouraging a more modern molecular approach to interfacial physical chemistry through international collaboration of leading expertise to compile and test a series of appealing experiments which can be readily carried out in undergraduate laboratories with relatively inexpensive equipment.

This project brings together leading physical chemists in the fields of attenuated total reflection infrared spectroscopy (ATRIRS), surface enhanced infrared spectroscopy (SEIRAS), and surface enhanced Raman spectroscopy (SERS), to select practicable experiments which can be carried out in teaching situations throughout the world. Both SERS and SEIRAS employ finely divided metal surfaces while the ATRIRS particle film approach can be applied to any solid. All of the chosen surface spectroscopies are applicable to solid/aqueous interfaces that are of considerable interest in studies of natural and technological systems.

The experiments will be tested and refined in their laboratories of origin, followed by testing in at least two university undergraduate laboratories elsewhere under normal laboratory conditions. Progress has been slower than expected, and 2009 will be crucial as the task group will meet at the beginning of 2009. The task group leader envisages a one year no-cost extension of the project. A meeting is planned in September 2009.

2007-001-2-100 – (Cox) [Evaluated kinetic data for atmospheric chemistry](#). This is essentially a follow-on to the earlier project and serves to update and expand the existing data base in yearly or semiannual workshops. For details see presentation of project 1999-037-2-100 above.

2007-002-1-100 – (Grolier) [Guidelines for modulated-temperature differential scanning calorimetry \(MTDSC\)](#)

Modulated-temperature differential scanning thermal analysis techniques are widely used in many fields. Particularly in pharmaceutical, food and polymer studies where first order transitions, glass transitions and polymorphism are key issues. All sorts of relaxation phenomena as well as coupled thermal and kinetic contributions can advantageously be investigated and selectively studied with such techniques. Typically, calorimetric measurements are subject to systematic errors especially when they depend upon the choice of physical parameters such as amplitude and period of modulation and the temperature scanning rate. Not only the instrument used plays an important role but the sample itself to investigate requires the parameters to be tuned to optimize the response of the instrument in order to eliminate systematic errors and get full unambiguous information. It has to be recognized that whatever the instrument and the associated methodology used the same quantitative information must be obtained on a given sample.

Extension will be made to thermal analysis techniques, where a modulation is superimposed to the temperature ramp, underlying the basic principles and the derived mathematical description of the data treatment. The different methods of measurement and calculation of the main thermodynamic quantities, such as specific heat capacities, first order transitions and glass transitions, will be carefully analyzed. On the different typical aspects associated to the techniques clear description will be made of the operating procedures and methodologies. The project should bring a consistent set of recommendations to be internationally accepted for the use of modulated-temperature calorimetry.

2007-024-2-100 (DeLoos) [Guidelines for reporting of phase equilibrium measurements](#)

The objective is to come up with a set of recommendations for potential authors seeking to start phase equilibria measurement and reporting of such data. The main focus of these recommendations will be on the documentation issues. This is a joint project with the International Association on Chemical Thermodynamics (www.iactweb.org).

2007-032-1-100 (Marquardt) [Green Book - Abridged Version](#)

The goal of this project is to provide an abridged student version of the [3rd edition of the IUPAC Green Book](#) (Quantities, Units and Symbols in Physical Chemistry) suitable for University teaching, and continuing education in an industrial context. The book will consist of 40-50 pages, which will be made available both as printed material and via the web together with appropriate tutorial examples and exercises

2007-048-2-100 (Ramasami) [Assessment of theoretical methods for the study of reactions involving global warming gas species degradation and byproduct formation](#)

The objectives of this project are (i) To review the quantum mechanical methods which have been used to investigate the reactions involving global warming gas species degradation and byproduct, and (ii) To assess the performance of the methods used by comparison with experimental data

2007-055-2-100 (Yamanouchi) [Ultrafast intense laser chemistry](#)

By surveying the current and recent investigations on molecules in an ultrashort intense laser field, we elucidate how important these investigations are for fundamental understanding of light-molecule interaction as well as for controlling chemical and biological reaction processes, and propose future research directions in this newly emerging research field

2007-059-1-100 (Letcher) [Heat capacities of liquids and vapours](#)

The purpose is to produce a single, up-to-date volume on all aspects of heat capacity for liquids and vapours, pure substances and mixtures written by the world's experts in each of about 20 subject areas. The outline of the proposed book may be found on the web (<http://www.iupac.org/web/ins/2007-059-1-100>).

2008-006-3-100 (Sun) [Critical evaluation of thermodynamic properties of hydrogen storage materials: metal organic frameworks and metal or complex hydrides*](#)

The primary purpose of the project is to investigate the thermodynamics of hydrogen production and storage, as a basis for the development of materials with improved hydrogen storage capability. This will be a systematic study of hydrogen adsorption/absorption by divided/confined materials (frameworks, for example Metal Organic Frameworks, MOFs, such as Li-MOFs), and the study of hydrogen production by (thermal) decomposition of Metal Hydrides (MHs, such as La-Mg-Ni/TiCrV-hydrides, MgH₂, etc.), and Inorganic Hydrides (Complex Hydrides, such as Li(Na, K, Mg)BH₄, Li-N-H, etc.). The project will consist of 3 major components: a. Establishing a comprehensive bibliography; b. Critical evaluation and compilation of the data; c. Creating an open domain XML-based web archive so that the results will be freely available

2008-007-3-100 (Marquardt) [Preparation for the translation of the *Green Book*](#)

The goal of this project is to pave the way and facilitate the process of using the English original computer source files for the preparation of a structurally identical Green Book document in other languages such as German, French, Italian, Turkish, Japanese or Portuguese. In the long run adherence to the present structure will facilitate generating across-the-languages dictionaries that are virtually produced error-free owing to minimal handling of the content.

2008-014-1-100 (Sengers) [Experimental Thermodynamics Vol. VIII. Applied Thermodynamics of Fluids](#)

The intent of this volume is to update and reprint [Experimental Thermodynamics Volume V, Equations of state for Fluids and Fluid Mixtures](#) (ISBN-10: 0444503846) and first published in Oct 2000. This text is out of print and because it was in two volumes with 928 pages was not always accessible to the intended practitioners within academia, government and industry. The proposed outline of the revised edition may be found at <http://www.iupac.org/web/ins/2008-014-1-100>.

2008-045-2-100 (Assael) A critical evaluation of the viscosity and density of molten copper and tin

The widely different data obtained for the viscosity of molten iron and aluminum will be critically reviewed via an interlaboratory comparison and recommended values will be proposed

B. PROJECTS NEARING COMPLETION AND/OR RECENTLY COMPLETED

2000-026-1-100 – (Marsh) [Critical compilation of vapour liquid critical properties](#)

The objective is to review all measurements of vapour-liquid critical properties for pure organic compounds containing **nitrogen**, **halogen(s)**, and **sulphur** and **silicon** and to recommend values for critical temperature, critical pressure and critical densities, with uncertainties.

To date, the project has resulted in nine review papers (Parts 1 to 9) published in the *Journal of Chemical and Engineering Data*.

Part 10. Organic Compounds containing Halogen. A draft manuscript on this extensive set of compounds has been sent out for final review, with submission to the Journal of Chemical and Engineering Data planned for next month.

Part 11 on Multifunctional Organic Compounds, and Miscellaneous Compounds for which Data had been published since the earlier Items in this Series.

Work on this is well advanced, with recent assistance from Alan Abramson, who has a very comprehensive collection of critical property data, and who was not previously involved.

The proposed Part 12, on Inorganic Compounds and Elements, has not progressed for some time but steps are being taken to include new members of the task force so that this can move ahead.

2001-030-1-100 – (Schwarz, Hinz) [Recommendations on the measurement and analysis of results obtained on biological substances with isothermal titration calorimetry](#)

The aim has been to prepare recommendations for measurement procedures for isothermal titration calorimetry applied to biological substances, the calibration procedures. The recommendations include analysis and reporting of the results in order to facilitate universal comparability of isothermal titration calorimetry (ITC) data from different laboratories.

Measurements have been done for a working standard NAD/NADH binding to a protein, lactate-dehydrogenase for checking the performance of isothermal titration calorimeters. The 'round-robin' ITC results from 12 laboratories on the binding of 4-carboxybenzene sulfonamide to carbonic anhydrase were carried out and were evaluated for inclusion in the IUPAC Recommendations.

The final report has been received, published ([Pure Appl. Chem., 2008, Vol. 80, No. 9, pp. 2025-2040](#)) and the project is now completed.

2002-005-1-100 – (Marsh) [Thermodynamics of ionic liquids, ionic liquid mixtures, and the development of standardized systems](#)

The aims of this project are to initiate systematic studies of thermodynamic and thermo-physical properties of Ionic Liquids (IL) based on the needs of industrial chemical processes, to establish a reference system of IL's and (IL + liquid mixtures) with reliable stability and purity and well defined thermodynamic properties, and to define guidelines regarding where research activities and future cooperation should be directed.

Extensive measurements for the standard reference materials have been completed at ten different laboratories around the world, regarding the viscosity, density, thermal conductivity, heat capacity, electrical conductivity, enthalpy of dilution, gas solubility at high pressure, and speed of sound over the temperature range from 238 K to 378 K. The project is completed and the findings have been published as Technical Reports in PAC ([Pure Appl. Chem., 2009, Vol. 81, No. 5, pp. 781-790](#) (part I) and [Vol. 81, No. 5, pp. 791-828](#) (part 2)). A list of scientific publications resulting from this project may be found on the web (<http://www.iupac.org/projects/2002/2002-005-1-100-publi070702.pdf>).

2003-020-2-100 – (Seddon) [Ionic liquids database](#)

The aim is to create an open-access, free, on-line, comprehensive database for storage and retrieval of metadata and numerical data for ionic liquids, including their syntheses, structure, properties, and uses.

The collection of data has been assigned among the seven participating laboratories along with the assignment of the development of the WEB outlet for the system and the storage and retrieval system. The database, storage and retrieval systems have been developed at the Thermodynamics Research Centre at NIST. A meeting of the Task Group took place in Beijing, P.R. China in August 2005. The website was officially launched in March 2006 at the American Chemical society Meeting and the database can be accessed at <http://ilthermo.boulder.nist.gov/ILThermo/mainmenu.uix>. The web site is divided into pure ionic liquids, binary and ternary mixtures and further chemical information. However, the data base has not been edited since 7/23/2006 which is some reason for concern regarding a field that is expanding at a fast pace. The project has been completed with the submission of the final report at the beginning of 2008.

2003-005-1-100 – (Wakeham) [Recommended values of the viscosity of molten iron and aluminum](#)

The widely different data obtained for the viscosity of molten iron and aluminum will be critically reviewed via an interlaboratory comparison and recommended values will be proposed.

The available experimental data for the density and viscosity of liquid aluminum and iron were critically examined with the intention of establishing a density and a viscosity standard. All experimental data were categorized into primary and secondary data according to the quality of measurement specified by a series of criteria. The proposed standard reference correlations for the density of the aluminum and iron are characterized by standard deviations of 0.65 and 0.77% at the 95% confidence level respectively.

The final manuscript was approved by ICTNS in June 2005. The report was published in *J Phys. Chem. Ref. Data*, Vol. 35, No. 1, pp. 285-300, 2006> doi:[10.1063/1.2149380](https://doi.org/10.1063/1.2149380). An extension project has been submitted and recently funded (2008-045-2-100 (Assael)).

2005-016-1-100 – (Letcher) [Developments and applications in solubility](#)*

A book “Developments and applications in solubility” ed. T.M. Letcher was published by the Royal Society of Chemistry in February 2007.

Solubility is one of the most basic and important of thermodynamic properties, and a property which underlies most industrial processes. This book is a collection of 24 chapters involving recent research works, all related to solubility. The objective brings together research from disparate disciplines which have a bearing on solubility. The book highlights the Theory, Techniques, interesting and new Results, Modeling and Simulation, and Industrial Applications related to solubility.

The book has its origins in committee meetings of the International Association of Chemical Thermodynamics. It is a project produced under the auspices of the International Union of Pure and Applied Chemistry (IUPAC). In true IUPAC image, the authors, which represent some of the most important names in their respective fields, come from many countries around the world, including: Australia, Austria, Finland, France, Germany, Ireland, Netherlands, New Zealand, Portugal, Slovenia, South Africa, Switzerland, Poland, United Kingdom and the United States of America.

2005-048-2-100 – (Letcher) [Solubility and thermodynamic properties related to environmental issues](#)*

A book “Thermodynamics, Solubility and Environmental Issues” ed. T.M. Letcher was published by Elsevier in April 2007.

Environmental problems are becoming an important aspect of our lives as industries grow apace with populations throughout the world. Thermodynamics, Solubility and Environmental Issues highlights some of the problems and shows how chemistry can help to reduce these them. The unifying theme is Solubility – the most basic and important of thermodynamic properties. This informative book looks at the importance and applications of solubility and thermodynamics, in understanding and in reducing chemical pollution in the environment. Written by experts in their respective fields and representing the latest findings in this very important and broad area. A collection of twenty-five chapters cover a wide range of topics including; mining, polymer manufacture and applications, radioactive wastes, industries in general, agro-chemicals, soil pollution and

biology, together with the basic theory and recent developments in the modelling of environmental pollutants.

2007-015-2-100 (Letcher) [Future Energy: Improved, sustainable and clean options for our planet](#).

The objective is to first consider the reasons for developing alternate forms of energy and to then detail all the possible forms available to us. Each chapter will be written by an engineer or scientist, working in the field. Much of the argument and details of the forms, depend on environmental and chemical issues. The project is now completed and the book titled "Future Energy - Improved, Sustainable and Clean Options for our Planet" has been published by Elsevier, 2008 [[ISBN 978-0-08-054808-1](#)]. The outline of the book may be found at <http://www.iupac.org/web/ins/2007-015-2-100>.

C. OTHER INTERDIVISIONAL PROJECTS (with lesser involvement of Division I)

2001-036-1-300 – (Parmon, Serpone) [Glossary of terms in photocatalysis and radiation catalysis](#)
(Division III)

2003-056-2-500 – (I. Murray, K.K. Murray) [Standard definitions of terms relating to mass spectrometry](#)
(Division V)

2004-005-2-500 – (Camões) [Comparable pH measurements by metrological traceability](#)
(Division V)

2004-021-1-300 – (Brauer, San Román) [Reference methods, standards and applications of photoluminescence](#) (Divisions III and V)

2005-042-1-300 – (Torbjörn) [Chemistry for Biology - an inventory of interdivisional and interdisciplinary activities within IUPAC in the field of biological chemistry](#)
(Division III)

2007-039-1-024 – (Frenkel) [Extension of ThermoML - the IUPAC standard for thermodynamic data communications](#) (Division VI)

2007-050-2-600 – (Letcher) (book project), [Climate and global change: observed impacts on planet earth](#) (Division VI)

D. PROJECTS IN REVIEW

2008-037-1 – (Griesbeck) Standard Photochemical Processes* (Division III).

IV PUBLICATIONS LIST (since 2000)

Sources: project updates, project websites and projects list taken from the Divisional webpage (<http://www.iupac.org/web/ins/100>). This list is **not** exhaustive.

IV.1 Reports and scientific papers

Evaluated kinetic and photochemical data for atmospheric chemistry: Volume IV – gas phase reactions of organic halogen species

Atmos. Chem. Phys., **8**, 4141–4496 (2008)

Evaluated kinetic and photochemical data for atmospheric chemistry: Volume III - gas phase reactions of inorganic halogens

Atmos. Chem. Phys. **7**, 981-1191 (2007)

Evaluated kinetic and photochemical data for atmospheric chemistry: Volume II - gas phase reactions of organic species

Atmos. Chem. Phys. **6**, 3625-4055 (2006)

Evaluated kinetic and photochemical data for atmospheric chemistry: Volume I – gas phase reactions of O_x, HO_x, NO_x and SO_x species

Atmos. Chem. Phys., **4**, 1461–1738 (2004)

Standards, calibration, and guidelines in microcalorimetry. Part 2. Calibration standards for differential scanning calorimetry

(IUPAC Technical Report)

Pure Appl. Chem. **78**(7), 1455-1476 (2006)

Vapor-Liquid Critical Properties of Elements and Compounds. 9. Organic Compounds Containing Nitrogen

J. Chem. Eng. Data; **51**(2), 305-314 (2006)

Reference data for the density and viscosity of liquid aluminum and liquid iron

J. Phys. Chem. Ref. Data, **35**(1), 285-300 (2006)

Atomic force microscopy and direct surface force measurements

(IUPAC Technical Report)

Pure Appl. Chem. **77**(12), 2149-2170 (2005)

Evaluated kinetic data for combustion modeling: supplement II

J. Phys. Chem. Ref. Data, **34**(3), 757-1397 (2005)

Measurement and interpretation of electrokinetic phenomena

(IUPAC Technical Report)

Pure Appl. Chem. **77**(10), 1753-1805 (2005)

IUPAC Critical Evaluation of Thermochemical Properties of Selected Radicals: Part I.

J. Phys. Chem. Ref. Data **34**, 573-656 (2005)

Practical guide to measurement and interpretation of magnetic properties

(IUPAC Technical Report)

Pure Appl. Chem. **77**(2), 497-511 (2005)**Electrochemistry at the interface between two immiscible electrolyte solutions**

(IUPAC Technical Report)

Pure Appl. Chem. **76**(12), 2147-2180 (2004)**Quantities, terminology, and symbols in photothermal and related spectroscopies**

(IUPAC Recommendations 2004)

Pure Appl. Chem. **76**(6), 1083-1118 (2004)**Measurement of pH. Definition, standards, and procedures**

(IUPAC Recommendations 2002) (V, I)

Pure Appl. Chem. **74**(11), 2169-2200 (2002)**Definitions, terminology and symbols in colloid and surface chemistry***Pure Appl. Chem.* **31**, 579-638 (1972)*Web Version 2001***Heat capacity of liquids: Critical review and recommended values. Supplement I***J. Phys. Chem. Ref. Data*, **30**(5), 1199-1689 (2001)**NMR nomenclature. Nuclear spin properties and conventions for chemical shifts (I.5)***Pure Appl. Chem.* **73**(11), 1795-1818 (2001)**Standards in isothermal microcalorimetry (I.2)***Pure Appl. Chem.* **73**(10), 1625-1639 (2001)**Quantum chemical B3LYP/cc-pvqz computation of ground-state structures and properties of small molecules with atoms of Z ≤ 18 (hydrogen to argon) (I.5)***Pure Appl. Chem.* **73**(9), 1521-1553 (2001)**Use of Legendre transforms in chemical thermodynamics (I.2)***Pure Appl. Chem.* **73**(8), 1349-1380 (2001)**Nomenclature of Structural and Compositional Characteristics of Ordered Microporous and Mesoporous Materials with Inorganic Hosts (IUPAC Recommendations 2001) (I.6)***Pure Appl. Chem.* **73**(2), 381-394 (2001)**Vapor-Liquid Critical Properties of Elements and Compounds: Part 8. Organic Sulfur, Silicon and Tin Compounds (I.2)***J. of Chem. and Eng. Data* **46**, 480-485 (2001)**Guidelines for presentation of methodological choices in the publication of computational results. B. Semiempirical electronic structure calculations (I.5)***Pure Appl. Chem.* **72**(8), 1449-1452 (2000)

Evaluated Kinetic and Photochemical Data for Atmospheric Chemistry. Supplement VIII (Halogen Species) (I.4)

J. Phys. Chem. Ref. Data **29**, 167-266 (2000)

Thermochemical Properties of the Hydroxy-formyl Radical HO CO, and the Formyloxy Radical, HC(O)O, and their Role in the Reaction OH + CO .H + CO₂: Computational G3MP2B3 and CCSD(T)-CBS Studies

J. Mol. Struct. TheoChem **713**, 227 (2005)

Ab Initio Determination of the Heat of Formation of Ketenyl (HCCO) and Ethynyl (CCH) Radicals.

Mol. Phys. **103**, 2159-2168 (2005)

Pulsed Field Ionization Photoelectron-photoion Coincidence Study of the Process N₂ + hv → N⁺ + N + e⁻ : Bond Dissociation Energies of N₂ and N₂⁺

J. Chem. Phys. **123**, 074330/1-7 (2005)

Thermochemical Properties of Free Radicals from G3MP2//B3 Calculations, Set-2: Free Radicals with Special Consideration of CH₂=CH-C=CH₂, cyclo-C₅H₅, CH₂OOH, HO-CO and HC(O)O.

Int. J. Chem. Kinet. **36**, 661 (2004)

W3 Theory: Robust Computational Thermochemistry in the kJ/mol Accuracy Range.

J. Chem. Phys. **120**, 4129 (2004)

Benchmark Thermochemistry of the Hydroperoxyl Radical.

J. Phys. Chem. A **108**, 3195 (2004)

Vibrational Spectrum and Thermochemistry of the Formyl (HCO) Radical: A Variational Study by the Coupled Cluster CCSD(T) Method with Complete Basis Set Extrapolation.

J. Phys. Chem. A **108**, 5431 (2004)

Thermodynamic Properties of C₁ and C₂ Bromo Compounds and Radicals: A Relativistic ab Initio Study.

J. Phys. Chem. A **108**, 7752 (2004)

Introduction to Active Thermochemical Tables: Several “Key” Enthalpies of Formation Revisited.

J. Phys. Chem. A **108**, 9979 (2004)

Equilibrium Geometry of the Ethynyl (CCH) Radical.

J. Phys. Chem. A **108**, 3030 (2004)

HEAT: High Accuracy Extrapolated Ab Initio Thermochemistry.

J. Chem. Phys. **121**, 11599 (2004)

Enthalpy of Formation of SH.

J. Phys. Chem. A **107**, 2061 (2003)

Equilibrium Structure and Force Field of NH₂.

Phys. Chem. Chem. Phys. **5**, 3359 (2003)

Structural and Thermochemical Properties of the Hydroxymethyl (CH₂OH) Radical: A High Precision Ab Initio Study.

J. Chem. Phys. **119**, 10105 (2003)

Coupled Cluster CCSD(T) Calculations of Equilibrium Geometries, Anharmonic Force Fields, and Thermodynamic Properties of the Formyl (HCO) and Isoformyl (COH) Radical Species.

J. Phys. Chem. A **107**, 2343 (2003)

A Variational Study of Nuclear Dynamics and Structural Flexibility of the CH₂OH Radical.

J. Chem. Phys. **119**, 3098 (2003)

Thermochemical Properties of Free Radicals from G3MP2//B3 Calculations.

Int. J. Chem. Kinet. **34**, 550 (2002)

The Enthalpy of Formation of ²CH.

Mol. Phys. **100**, 3879 (2002)

Anharmonic Force Field, Structure, and Thermochemistry of CF₂ and CCl₂.

Phys. Chem. Chem. Phys. **4**, 3282 (2002)

[Pure Appl. Chem. 2008, Vol. 80, No. 9, pp. 2025-2040](#) (project 2001-030-1-100 Schwarz/Hinz))

Temperature dependence of the ¹H chemical shift of tetramethylsilane in chloroform, methanol, and dimethylsulfoxide

[J. Magn. Reson. 176 \(2005\) 87](#)

Measurement of magnetic susceptibility and calculation of shape factor of NMR samples

J. Magn. Reson. **178** (2006) 237

Standardization of chemical shifts of TMS and solvent signals in NMR solvents

Magn. Reson. Chem. **44** (2006) 606

IUPAC Recommendation published in PAC ([Pure Appl. Chem. 80\(1\), 59-84, 2008.](#)) with reprinting in

(a) *Magn. Reson. Chem.* **46** (2008) 582-598 (together with an editorial letter in *Magn. Reson. Chem.* **46** (2008) 507)

(b) *Solid State NMR* **33** (2008) 41-56

(c) *Encyclopedia of Magnetic Resonance (on-line)*, Editors-in-Chief R. K. Harris & R. E. Wasylshen, DOI 10.1002/9780470034590.emrstm1019

[Glossary of terms used in photochemistry](#), 3rd edition (IUPAC Recommendations 2006)
Pure Appl. Chem. **79**(3), 293-465, 2007

IUPAC Recommendations published in [Pure Appl. Chem. 78\(3\), 541-612, 2006](#)
+ [Supporting Information \(zip file - 38KB\)](#)

Active Thermochemical Tables in: 2005 Yearbook of Science and Technology, McGraw-Hill, New York, 2004, pp. 3-7

IV.2 BOOKS

Developments and applications in solubility, ed. T.M. Letcher
Royal Society of Chemistry, February 2007.

(from project 2005-016-1-100 - [Developments and applications in solubility](#)*)

Thermodynamics, solubility and environmental issues, ed. T.M. Letcher
Elsevier, April 2007.

(from project 2005-048-2-100 - [Solubility and thermodynamic properties related to environmental issues](#)*)

Revision of "Quantities, Units and Symbols in Physical Chemistry" and the Appendices (3rd edition)

(Result of project 110/2/81- [Revision of "Quantities, Units and Symbols in Physical Chemistry" and the Appendices \(3rd edition\)](#)). The 3rd Edition has been published by the Royal Society of Chemistry /IUPAC in August 2007 coincident with the GA 2007 in Torino.

IV.3 DATABASES

Kinetics on atmospheric reactions (homogeneous gas-phase, heterogeneous gas-condensed phase and gas-phase photochemical) database on <http://www.iupac-kinetic.ch.cam.ac.uk/>.

Ionic liquids database. Thermodynamic data are available on <http://ilthermo.boulder.nist.gov/ILThermo/mainmenu.uix/>

Supplemental phase diagrams on http://www.iupac.org/publications/cd/phase_diagrams/index.htm

DIVISION III REPORT FOR THE COUNCIL

1. Executive Summary

The current and future Divisional funding is dependent on more advanced plans and therefore the importance of developing relevant project is decisive. The number of Projects (active, submitted and to be submitted) was increased during the last biennium.

The Division administers the CHEMRAWN VII prize for Atmospheric and Green Chemistry. The prize will be awarded every two years to a young investigator from a developing country, beginning in 2010. The Selection Committee is composed by the President of the Organic and Biomolecular Chemistry Division as Chair, the Chair of the Subcommittee on Green Chemistry, and the Chair of CHEMRAWN

2. Division III Activities

Division III is characterized by a large number of Sub-Committees, S/Cs, who are very active in six specific sectors. They organize biannual International Conferences and Workshops, promote and manage Projects, publish the results on Special Issues of PAC. They are:

Sub-committee on Organic Synthesis;
Chairman, Frank McDonald, USA

Sub-committee on Biomolecular Chemistry;
Chairman, Mike Blackburn, UK

Sub-committee on Photochemistry;
Chairman, Sylvia Braslavsky, Germany

Sub-Committee on Green Chemistry;
Chairman, Buxing Han, China

Sub-committee on Structural and Mechanistic Chemistry;
Chairman, Einar Uggurud), Norway

Sub-committee on Biotechnology;
Chairman, Francesco Nicotra), Italy
Revised S/C membership will be carried out in the occasion of the Glasgow IUPAC Congress.

Goal 1: IUPAC will provide leadership as a worldwide scientific organization that objectively addresses global issues involving the chemical sciences.

The Conferences organized by the S/Cs are always carried out with the support of the National and International Organizations. A new series of Conferences on Green Chemistry is now established. The second event was carried out in Moscow-S. Petersburg on September 2008. The third one will be in Ottawa on August 2010.

Goal 2: IUPAC will facilitate the advancement of research in the chemical sciences through the tools that it provides for international standardization and scientific discussion.

Three projects are presently addressing this aim:

1. Glossary of Physical Organic Chemistry (Perrin, USA);
2. Standard photochemical processes (Griesbeck, Germany) and
3. Evaluation of measurement methods and QA/QC for PCDD/F, PCB and PAHs in environmental matrices (air quality, soil, sediments and wastes) used in estimation of global pollution (Raccanelli, Italy);

Goal 3: IUPAC will assist chemistry-related industry in its contribution to sustainable development, wealth creation, and improvement in the quality of life.

The Division is administering the **CHEMRAWN VII prize for Atmospheric and Green Chemistry**. The prize of USD 5000 will be awarded every two years to a young investigator from a developing country, beginning in 2010. The nominees should be <45 years, since many young chemists from developing countries require some years to develop the appropriate track record of accomplishment. The prize was announced at the Moscow ICGC-2 Conference, and that nominations for the prize would close on December 31st of the year preceding the Green Chemistry conference at which each prize would be awarded.

We are pleased to announce that the CHEMRAWN VII Future Actions Committee and the Organic and Biomolecular Chemistry Division have agreed to establish the title Prize, to be awarded biennially at the IUPAC Conference on Green Chemistry. The first award will be given at the IUPAC ICGC-3, Ottawa, August 15-19 2010. Nominations for the prize would close on December 31st of the year preceding the Green Chemistry Conference, that is on December 31st, 2009. Each nomination should include a CV and two letters of support plus a brief summary of research, emphasizing the contribution of the applicant in the field of green chemistry and emphasizing atmospheric chemistry.

The Selection Committee is composed by the President of the Organic and Biomolecular Chemistry Division as Chair, the Chair of the Subcommittee on Green Chemistry, and the Chair of CHEMRAWN

Goal 4: IUPAC will foster communication among individual chemists and scientific organizations, with special emphasis on the needs of chemists in developing countries.

Professor Liliana Mannino, University of Venda, South Africa, is managing the project: Biomass burning in Sub-Saharan Africa.

Goal 5: IUPAC will utilize its global perspective and network to contribute to the enhancement of chemistry education, the career development of young chemical scientists, and the public appreciation of chemistry.

Particularly active at this regards are the Translation in Romanian and Dissemination of a monograph for Universities and Secondary Schools on "Global Climate Change". A new request is now in evaluation concerning its translation in Greek.

Under evaluation are also two Projects concerning dissemination, workshops, media:

1. Green Chemistry – creation and implementation of international cooperation in teaching and investigations. THE GREAT GREEN WAY (Lunin) and
2. Green Chemistry: Sustainable Education and Environmental Development in Latin America. SEEDS (Vasquez).

Goal 6: IUPAC will broaden its national membership base and will seek the maximum feasible diversity in membership of IUPAC bodies in terms of geography, gender, and age.

The present Membership of the Division, S/Cs, Projects and Conferences takes care of that.

3. Additional Information

Divisions I, III, V and VI intent to propose the institution of an **Interdivisional Committee on Green Chemistry**.

The importance of establishing this Committee on Green Chemistry is based upon the relevance that this field has acquired during the last years. In fact Green Chemistry involves not only the educational aspects, but more importantly represents a joint endeavour of numerous Projects carried out by the sub-Committee on Green Chemistry of the Division III. In fact the above-referenced Divisions were in the past often involved in various aspects of Green Chemistry ranging from fundamental (Division I), specific systematic (Division III) and analytical (Division V) as well as general environmental (Division VI) implications, so much so that we propose this Interdivisional Committee in order to realize the synergy and cohesion that this topic naturally commands. This new organization will enable the debate on ideas and concepts, provide a forum for discussion and facilitate the formulation of projects in this rapidly advancing field that is intimately connected to global sustainability issues. In a sense, the proposed Commission should be the voice of chemistry in the climate change debate. As a case in point, the importance of fundamental and applied chemistry in this field was recently confirmed by numerous research projects financed worldwide by several countries and agencies.

It should highlight these aspects as they will be useful to increase the visibility of Chemistry in the scientific community also in view of the forthcoming International Year of Chemistry; IYC. The coordination afforded by the four proposing Divisions may increase the visibility of IUPAC by approaching projects that involve a larger context and may reach a wider public.

International Year of Chemistry. This topic will be fully discussed in the occasion of the Divisional meeting in Glasgow, taking the advantage of the presence of the Sub-Committee presence and their active Chairmen. Particular importance will be devoted to the organization of joint Festivals or/and Olympic Chemical Games, involving the multiform actors in Organic and Biomolecular Chemistry Division.

4. Tabular Material

CONFERENCES AND MEETINGS OF SUB-COMMITTEES

Organic Synthesis. ICOS-17 (Daejeon, Korea: June 22-27, 2008)

Biomolecular Chemistry. The CHEMBIOTECH meeting in Torino (August 2007) and ISCNP26/ICOB6 in Charlottetown, PEI, Canada (July 2008) were successfully.

Green Chemistry. ICGC-2; Moscow, Russia: September 14-20, 2008; a special issue of Pure Appl. Chem. is linked to this meeting.

Photochemistry. 22nd IUPAC Symposium on Photochemistry (Gothenburg, Sweden: July 28-1 August 2008)

Structural and Mechanistic Chemistry. ICPOC-19, Santiago de Compostela, Spain: July 13-18, 200 during the International Symposium on Physical Organic Chemistry.

Biotechnology. 13-IBS; Dalian, China: October 12-17, 2008

PROJECTS

Projects in progress (2007-2007 biennium, allocation shown)

- a. 2007-025-1; Biomass burning in Sub-Saharan Africa (Mammino; \$8k);
- b. 2007-035-1; Translation in Romanian and Dissemination of a monograph for Universities and Secondary Schools on "Global Climate Change" (Pascariu; \$4.5k);
- c. 2007-051-1; Workshop for finalizing the project proposal document for setting up International Center for Natural Product Research (ICNPR) (Mozzihuzamann, \$6k);

Approved during 2008-2009 biennium (total to date \$14.8k)

- d. 2008-016-1-300; Making the online journal of green chemistry: Green Rapid Internet Communications (Tundo; \$3,5k);
- e. 2008-026-1-xxx; Strategic planning for a new East and SouthEast Asian Network for Organic Chemistry (Isobe; \$5k);
- f. 2008-006-3-100; Thermodynamic Study on Hydrogen Storage Materials: Metal Organic Frameworks and Metal or Complex Hydrides (Sun, China; \$1k)
- g. 2009-002-1-300; Update of IUPAC Glossary of Physical Organic Chemistry (Perrin, USA; \$4.8k);

Projects currently in review

- h. 2008-1-017-4; Green Chemistry – creation and implementation of international cooperation in teaching and investigations. THE GREAT GREEN WAY (Lunin; \$10k requested; Div. recommendation to PC to fund \$5k);
- i. 2008-018-1; Translation in Greek and dissemination of a monograph for secondary schools on Global Climate Change (Siskos, \$7.5k requested);
- j. 2008-037-1; Standard photochemical processes (Griesbeck, \$15k requested; to be resubmitted);
- k. 2009-007-1; Evaluation of measurement methods and QA/QC for PCDD/F, PCB and PAHs in environmental matrices (air quality, soil, sediments and wastes) used in estimation of global pollution (Raccanelli, \$9.9k requested of which \$3.3k from Div III);
- l. 2009-014-1; Green Chemistry: Sustainable Education and Environmental Development (*SEED*) in Latin America (Vasquez, \$10k requested from various IUPAC Divs);

PLANNING FOR FUTURE SYMPOSIA

ICOS-18 (Bergen, Norway, August 1-6 2010; organizer L. Sydnnes), and ICOS-19 (Melbourne, Australia, 2012).

ICPOC -20: (Korea, August 2010)

ISCNP27/ICOB7 (Brisbane: July 10-14, 2011)

ISBOC-8 (North America, Townsend/Vederas, 2010) and then in Europe in 2012.

Biotechnology The 2010 meeting will take place in Italy, Bologna, while an application from Korea to host the meeting in 2012 has been accepted.

ICGC-3. 3rd Int. Conference on Green Chemistry (Ottawa, Canada, 15-19 August 2010).

Pietro Tundo
President of Division III

IUPAC Polymer Division Report 2008-2009

Prepared by C. K. Ober, Division President

I. Highlights:

The Polymer Division of the International Union of Pure and Applied Chemistry is concerned with the science and technology of macromolecules and polymers. Its aims are:

- To facilitate international scientific exchange
- To cooperate with other international organizations
- To promote macromolecular and polymer science and technology at the international level, including education, conferences and the assessment of societal impact
- To define terminology and standards in macromolecular and polymer science and technology

The Polymer Division is organized into 6 subcommittees: i) Polymer Terminology; ii) Developing Polymer Materials; iii) Polymer Education; iv) Molecular Characterization of Polymers; v) Structure and Properties of Commercial Polymers; and vi) Modeling of Polymerization Kinetics and Processes. The activities of each subcommittee are well described by its title.

Of particular note, the Subcommittee on the Structure and Properties of Commercial Polymers is almost entirely made up of members from the chemical industry. The Subcommittee on Developing Polymer Materials is unique in that its goal is to generate new ideas at the forefront of polymer chemistry and to pass the resulting projects onto the other subcommittees. In addition there are small groups of Division members responsible for the Division Web Page and Electronic Publications, fostering International Cooperation focused on the IYC and for enhancing Industrial and International Relations.

During the last year and a half the Division has been actively working to achieve these goals. Some of the highlights of the past 18 months include:

Preparing for the International Year of Chemistry: At the recent IUPAC World Polymer Congress (WPC) and as a follow-up to IUMACRO-07, a mini-summit was held between the Polymer Division and representatives of several international polymer societies to discuss possible areas of co-operation. Attendees included representatives of the European Polymer Federation, the Japanese Society of Polymer Science, the Korean Polymer Society, and the

American Chemical Society. Several topics for greater co-operation were identified including education, the developing world and in sponsoring symposia aimed at younger polymer scientists. A meeting will be held at the Glasgow WCC with leaders of other polymer societies to build a joint program around the International Year of Chemistry. At the moment the current ideas include:

1) Joint symposia and conferences - There are a variety of possible topics including polymer education, the impact of polymers on society, etc. It might be very nice to hold joint programs at the meeting of the European Polymer Federation or with the Asian Pacific Federation as well as during the Puerto Rico IUPAC General Assembly. Joint symposia might be focused on younger polymer scientists. A direct result of prior discussions was the International Young Polymer Scientist Symposium held at MACRO 2008 in Taipei. We will explore particular topics or other ways to work together.

2) An enhanced web presence - the IUPAC Polymer Division has established an education web site that it is working to improve. Currently it rates very high in Google searches of “polymer education” and is continuing to climb. The web address is: <http://www.iupac.org/polyedu/> This web site links to educational web sites in over 4 continents and 8 countries and distributes without cost an educational CD that explains the basics of polymer chemistry. This web site is already linked to the CCE and IYC web pages. It might be appropriate, for example, to include video messages from distinguished polymer scientists representing different parts of the world celebrating IYC. This web site could also list events focused on polymers related to the IYC.

3) The value of polymers to society - the IUPAC polymer division has spoken with members of the polymer industry and they are interested in communicating the value of polymers to society. While this is a difficult year to talk to industry due to the economy, they might in future years (by 2011) be interested in supporting this.

IUPAC Visibility and Promotion of Polymer Chemistry: It has been the goal of the Polymer Division to increase its visibility to the scientific community, to increase its value to younger polymer chemists and to honour its most productive members. The division administers the IUPAC-Samsung Young Polymer Scientist Award, the “DSM Performance Materials Award (with the cooperation of IUPAC)” and the IUPAC-Polymer International

Award. Both the "DSM-IUPAC" and the "IUPAC-PI" Award were newly presented at the recent 2008 IUPAC World Polymer Congress. Division IV was directly involved in the selection of the award winners. Each award has been well received by the chemical community and the following polymer chemists were honoured: Craig Hawker (USA), DSM-IUPAC Award; Zhenan Bao (USA), IUPAC-PI Award; and Eric Cloutet (France), Samsung Award. Nominations for the DSM-IUPAC and the IUPAC-PI awards are underway with presentations expected for the 2010 World Polymer Congress to be held in Glasgow.

International Research Funding Pilot Project: As an outgrowth of this educational effort, Division IV is planning a showcase project with the IUPAC Task Group on "International Research Funding in the Chemical Sciences" to examine the possible role of IUPAC in fostering international joint research projects. Discussions were recently held in December 2008 in Washington DC and a detailed plan for a call for proposals involving researchers of 3 or more countries was discussed. It is the goal to involve researchers and students from developing countries as part of the Div. IV educational efforts. A timetable has been set and a joint project is planned in this activity. We hope to have the call for proposals in place shortly and functioning so that we can hold a symposium of all participants during IYC or shortly thereafter.

II. Report of Division/Committee Activities during 2008 2009.

In all its activities, the Polymer Division strives to achieve several of its strategic goals simultaneously. For this reason, this report somewhat artificially divides its activities into the sub-categories that are the IUPAC strategic objectives.

a) IUPAC will provide leadership as a worldwide scientific organization that objectively addresses global issues involving the chemical sciences.

The creation, study and manufacture of polymers are actions of worldwide significance. Polymers are key elements in virtually all the major science and technology fields ranging from medicine to microelectronics to nanotechnology. Increasingly, the large-scale production of polymers is shifting to the developing world. For these reasons the Polymer Division, has targeted efforts in education of and involvement of chemists from these regions.

As an example, Division IV is working on two activities that we see as opportunities to address this. Our planned activities for the International Year of Chemistry, through our joint

activities with polymer societies, through our increased web presence and through our increased focus on symposia for younger scientists will help us better connect with the developed and developing region. In particular, the education subcommittee is developing new teaching material that it will distribute over the Internet. As another example, our pilot project with the IUPAC Task Group on “International Research Funding in the Chemical Sciences” on developing new models for research funding involves the engagement of developing countries. By encouraging the hiring of students and post-docs from developing regions as part of this multi-country effort, we hope to better train these researchers, raise their level of chemical expertise, build professional networks that are so important in the sciences and through this process make them more aware of IUPAC.

b) IUPAC will facilitate the advancement of research in the chemical sciences through the tools that it provides for international standardization and scientific discussion.

The Polymer Division works consistent with this goal through its sub-committees to identify current polymer trends and topical areas and help to develop standard definitions, processes, methods and materials. For example, the Terminology Subcommittee is refining the language of polymer chemistry and through its collaborations, working to develop terminology of materials chemistry as well. The Subcommittee on Structure and Properties of Commercial Polymers works with members of the chemical industry to standardize terms and methods related to the characterization of polymers. The Subcommittee on Modeling of Polymerization Kinetics and Processes is providing a wealth of scientific literature to standardize the known rate constants and mechanistic models for polymerization chemistry while the Subcommittee on Molecular Characterization of Polymers is developing a common framework for the analysis of polymers at the molecular level, for example, in the area of the molecular weights, molecular size and other properties of polymer molecules. These Subcommittees publish regular reports to disseminate this information to the polymer chemistry community.

Purple Book: In addition to the reports that the Division produces throughout the year as a result of its project system, the division is responsible for the Purple Book. An updated and enhanced version has just been published. As one of our most significant terminology projects the Division is justifiably proud. *Compendium of Polymer Terminology and Nomenclature*, IUPAC recommendations 2008 [RSC Publishing](#), 2009 [ISBN 978-0-85404-491-7] Congratulations to the editors, especially Prof. Richard Jones.

c) IUPAC will assist chemistry-related industry in its contribution to sustainable development, wealth creation, and improvement in the quality of life.

A strategic goal of the division is to improve our links to the chemical industry. Two ways to do this are through our existing sub-committees. The Division IV Subcommittee on Polymer Structure-Property Relationships has an extraordinarily high level of industrial participation (over 90%). A major reason for this is that the round-robin style of data collection and sharing has an enormous benefit for industry. It is our plan to use the high industrial participation to reach out to industry and build further ties. Bob Stepto, former Division President, has also been appointed to serve as a new Industrial Liaison and has attended the sub-committee meeting to make connections to industry and also visited a trade organization located in Brussels to explain the role of IUPAC to the Polymer Industry. It has been recommended that he temporarily hold off on his efforts because of the economy, but we expect that later this year these and other actions will serve to further engage industry in our activities. We do expect that a strong interest voiced by industry to help with our educational efforts and participation in the IYC will lead to stronger connections despite the current economic situation. We would also like to work with COCI on this topic and expect to continue discussions started in Bratislava on this topic.

d) IUPAC will foster communication among individual chemists and scientific organizations, with special emphasis on the needs of chemists in developing countries.

The Polymer Division communicates with the polymer chemistry community through its publications, through the organization of conferences and through the internet using both the IUPAC website and its own Polymer Education website.

Publications: Since the reports of the Division subcommittees are mentioned above, I will only add that the Polymer Division has published many of its conference proceedings as part of the Macromolecular Symposia Series, through Wiley. This venue offers both an additional means of communication and also provides a modest income for the Division.

Conferences: The World Polymer Congress (June 2008, Taipei. Organizer: Prof. Show-An Chen) attracted more than 1,200 participants from 50 different countries. The IUPAC web site describing sponsored symposia lists the additional conferences sponsored by Div. IV. In addition the WPC 2010 will be held in the same venue as the current WCC. It would be good in future to better coordinate WCC and WPC locations so that these repeats do not occur. In

addition, several more conferences to be held in 2009 are in the process of being granted IUPAC sponsorship. WPC 2012 is expected for early July in Blacksburg, VA, USA and WPC 2014 is expected to be in Asia with the frontrunner for host being Thailand.

In the immediate past and current years, 12 sponsored conferences were or are scheduled. Just as the Torino WCC hosted the first technical sessions devoted to topics related to the Polymer Division interests, the Glasgow WCC will also host symposia organized by and related to Division topics. We are grateful to the Glasgow organizers for enabling us to do this. It is our ongoing goal to continue to carry out organization of polymer-focused symposia at future WCC.

Internet: IUPAC provides a website for provision of information about the organization. At present this website is inadequate for two reasons – it is just now becoming functional but still needs improvement. But is also misses a real opportunity to better communicate the benefits of chemistry to society. Perhaps this will change with the website planned for the International Year of Chemistry.

The Polymer Division educational website is slowly growing. Already it is one of the most highly ranked web sites at Google for polymer education. Originally planned as a tool to disseminate the contents of a CD on polymer science, it has now grown to include links to international polymer education web sites, it provides educational material created at Polymer Division conferences and workshops, it will provide links to the IYC web site as it develops and it will serve as a platform for additional Polymer Division IYC activities.

e) IUPAC will utilize its global perspective and network to contribute to the enhancement of chemistry education, the career development of young chemical scientists, and the public appreciation of chemistry.

The education sub-committee is energetically working on several activities. In addition to its web site mentioned above, in line with the strategic goals of the Polymer Division, it has a particular focus on educational activities for the developing world and especially younger scientists. It is developing links to polymer education groups across the globe. It is also a goal to use the web site to provide access to the educational material developed for IUPAC sponsored polymer division conferences. It has recently made available educational materials resulting from workshops and conferences through its web site.

As an outgrowth of this educational effort, Division IV is planning a showcase project with the IUPAC Task Group on “International Research Funding in the Chemical Sciences” to examine the possible role of IUPAC in fostering international joint research projects. Discussions were recently held in December 2008 in Washington DC and a detailed plan for a call for proposals involving researchers of 3 or more countries was discussed. It is the goal to involve researchers and students from developing countries as part of the Div. IV educational efforts. A timetable has been set and a joint project is planned in this activity. We hope to have the call for proposals in place shortly and functioning so that we can hold a symposium of all participants during IYC or shortly thereafter.

Other activities include UNESCO/IUPAC polymer education workshops, held periodically in South Africa to offer training to young chemists from the developing world. The UNESCO/IUPAC Postgraduate Course in Polymer Science organized by the Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, in Prague also offers financial support and training for students from the developing world. Finally, each year the PolyChar conference offers a workshop aimed at students to better understand the methods of polymer characterization. Also important is the Samsung prize, recognizing the accomplishments of young polymer scientists, given at the World Polymer Congress. This and other prizes (see Other Information below) provide recognition of the accomplishments of polymer chemists.

f) IUPAC will broaden its national membership base and will seek the maximum feasible diversity in membership of IUPAC bodies in terms of geography, gender, and age.

The Polymer Division makes every effort to ensure that its membership is represented by chemists from all major regions of the earth. We have a tradition of rotating the leadership between Europe, the Asia Pacific region and the Americas. In order to maximize participation, our electoral process involves voting by Titular Members, Associate Members, National Representatives, Subcommittee Chairs, and project members. In this way all relevant persons can participate. We regularly involve 10 NRs in our activities. We are working hard to bring in younger members to participate in our leadership and as members of our subcommittees.

III. Other substantive information

Polymer Chemistry Awards: It has been the goal of the Polymer Division to increase its visibility to the scientific community, to increase its value to younger polymer chemists and to honour its most productive members. The division now administers the IUPAC-Samsung Young Polymer Scientist Award, the “DSM Performance Materials Award (with the cooperation of IUPAC)” and the IUPAC-Polymer International Award. Both the “DSM-IUPAC” and the “IUPAC-PI” Award were newly presented at the recent 2008 IUPAC World Polymer Congress. Division IV was directly involved in the selection of the award winners. Each award was a great success and the following polymer chemists were honoured: Craig Hawker (USA), DSM-IUPAC Award; Zhenan Bao (USA), IUPAC-PI Award; and Eric Cloutet (France), Samsung Award. Nominations for the DSM-IUPAC and the IUPAC-PI awards are underway for the 2010 World Polymer Congress.

IV. Tabular Material.

The following section provides information on the recently published *Purple Book*, *Macromolecular Symposia*, Polymer Division Conferences with IUPAC sponsorship and Division Created Technical Reports.

Purple Book - *Compendium of Polymer Terminology and Nomenclature - IUPAC Recommendations 2008* published by RSC, 2009 [ISBN 978-0-85404-491-7].

This new edition of the "Purple Book" is one of a series of books issued by IUPAC. It collects into a single volume the most important position papers on the nomenclature and terminology of several types of polymers, such as Regular Single-Strand Organic Polymers, Regular Double-Strand (Ladder and Spiro) Organic Polymers, and Irregular Single-Strand Organic Polymers. The scope has been extended to include papers on terminology for polymers. It is a handy compendium for scientists and is invaluable for those professionals working in this field.

Macromolecular Symposia - The following volumes have been published since the last biennial report as of March 30, 2009 by Wiley – VCH in 2008 – 2009, based on presentations in the sponsored conferences.

Macromolecular Complexes, Macromol. Symp. vol 270, Aug 2008
12th IUPAC International Symposium on Macromolecular Complexes (MMC-12) was held August 27-31, 2007 in Fukuoka, Japan

Editor: Naoki Toshima

Advanced Polymer Materials for Photonics and Electronics, Macromol. Symp. vol 268, July 2008

The conference Advanced Polymer Materials for Photonics and Electronics took place in Prague, 15-19 July 2007

Editor: Vera Cimrová

Nanostructured Polymers and Polymer Nanocomposites, Macromol. Symp. vol 267, June 2008

The conference Nanostructured Polymers and Polymer Nanocomposites took place in Prague, July 2007.

Editor: Libor Matejka

POLYCHAR-16 World Forum on Advanced Materials, Macromol. Symp. vol 277, March 2009

POLYCHAR 16 was held February 17th-21st 2008 in Lucknow, India

Editor: Michael Hess

IUPAC Conferences sponsored by the Polymer Division

17 February 2008

[POLYCHAR-16 - World Forum on Advanced Materials](#)

02 June 2008

[6th International Symposium on Molecular Order and Mobility in Polymer Systems](#)

29 June 2008

[Macro 2008 - Polymers at Frontiers of Science and Technology](#)

20 July 2008

[2008 Prague Meetings on Macromolecules - 48th Microsymposium "Polymer colloids: From design to biomedical and industrial applications"](#)

07 September 2008

[4th International Symposium on Macro- and Supra-molecular Architectures and Materials \(MAM-08\)](#)

08 September 2008

[10th Annual UNESCO/IUPAC Conference on Macromolecules & Materials](#)

15 February 2009

[Materials of the Future-Science of Today: Radical Polymerization](#)

20 April 2009

[PolyChar 17 - World Forum on Advanced Materials](#)

07 June 2009

[Frontiers in Polymer Science - International Symposium Celebrating the 50th Anniversary of the Journal "Polymer"](#)

28 June 2009

[2nd International Conference on Self-Healing Materials](#)

05 July 2009

[13th International IUPAC Conference on Polymers and Organic Chemistry \(POC-'09\)](#)

05 July 2009

[New Frontiers in Macromolecular Science: From Macromolecular Concepts of Living Matter to Polymers for Better Quality of Life](#)

12 July 2009

[European Polymer Congress 2009](#)

26 July 2009

[19th IUPAC International Symposium on Ionic Polymerization \(IP '09\)](#)

Technical Reports and Recommendations

Commission On Macromolecular Nomenclature

J. Alemán, A. V. Chadwick, J. He, M. Hess, K. Horie, R. G. Jones, P. Kratochvíl, I. Meisel, I. Mita, G. Moad, S. Penczek and R. F. T. Stepto

Definitions of terms relating to the structure and processing of sols, gels, networks, and inorganic-organic hybrid materials (IUPAC Recommendations 2007)

Vol. 79, Issue 10, p. 1801 [[Details + Abstract](#)] [[Full text - pdf 295 kB](#)]

Commission On Macromolecular Nomenclature - Subcommittee On Macromolecular Terminology - Subcommittee On Polymer Terminology

Stanisław Penczek and Graeme Moad

Glossary of terms related to kinetics, thermodynamics, and mechanisms of polymerization (IUPAC Recommendations 2008)

Vol. 80, Issue 10, p. 2163 [[Details + Abstract](#)] [[Full text - pdf 269 kB](#)]

Subcommittee On Modeling Of Polymerization Kinetics And Processes

Sabine Beuermann, Michael Buback, Pascal Hesse, Frank-Dieter Kuchta, Igor Lacík and Alex M. van Herk

Critically evaluated rate coefficients for free-radical polymerization Part 6: Propagation rate coefficient of methacrylic acid in aqueous solution (IUPAC Technical Report)

Vol. 79, Issue 8, p. 1463 [[Details + Abstract](#)] [[Full text - pdf 246 kB](#)]

Subcommittee On Polymer Terminology

Robert F. T. Stepto

Dispersity in polymer science (IUPAC Recommendations 2009)

Vol. 81, Issue 2, p. 351 [[Details + Abstract](#)] [[Full text - pdf 164 kB](#)]

Subcommittee On Structure And Properties Of Commercial Polymers

Dick J. Dijkstra

Guidelines for rheological characterization of polyamide melts (IUPAC Technical Report)

Vol. 81, Issue 2, p. 339 [[Details + Abstract](#)] [[Full text - pdf 299 kB](#)]



International Union of Pure and Applied Chemistry

Analytical Chemistry Division

Report to Council 2009

(Period covered 2008-2009)

Aleš Fajgelj, President

Content:

- I Highlights and Executive Summary
- II Report of activities since January 2008
- III Other information
- IV Tabular material
 - IV.1 IUPAC Recommendations and Technical Reports 2008-2009
 - IV.2 Conference proceedings
 - IV.3 Books
 - IV.4 Current projects
 - IV.5 Conferences/Symposia
 - IV.6 Lectures and seminars
 - IV.7 Workshops

I Highlights and Executive Summary

- In the current biennium (2008-2009) the core bodies of the Analytical Chemistry Division remain the Division Committee, the Interdivisional Working Party on Harmonization of Quality Assurance ([WPHQA](#)) and the Subcommittee on Solubility and Equilibrium Data ([SSED](#))
- The Division continues to successfully run a number of divisional and interdivisional projects.
- The Division keeps and actively supports its key publication/databases, namely *The Compendium of Analytical Nomenclature - Orange Book*, the *Solubility Database* and the *Stability Constants Database*.
- For the current biennium Division has established focus (interest) groups on Communication, Critical evaluation of data, Electronic resources for IUPAC terminology work, Emerging analytical issues, Metrology, and the Analytical potential of nuclear techniques.
- The Division continues publishing its newsletter *Teamwork*, which serves for communication within the Division and with other IUPAC members and bodies.
- The Division is actively involved in global harmonization and standardization activities, where in current biennium a special emphasis was put to metrology in chemistry.
- The Division actively cooperates with number of international organizations and bodies (e.g. BIPM, CITAC, EURACHEM, IAEA, IAM, IUPAP, UNIDO, etc.)
- Based on a good geographical distribution of its members, and on the above mentioned cooperations, the Division is continuing its efforts in supporting chemists in developing countries and economies.

II Report of activities since January 2008

(Organized by the six Goals of the current IUPAC Strategic Plan.)

Note: Many of the Division activities described below span over more than one point of the IUPAC Strategic Goal.

a) Providing leadership as a worldwide scientific organization that objectively addresses global issues involving the chemical sciences:

Taking into account limited human resources, the Division can only address a limited number of issues. This is done through interest groups. For the biennium 2008-2009 the following interest groups (formerly tasks groups) were created: *Communication, Critical evaluation of data, Electronic resources, Emerging analytical issues, Metrology and the Analytical potential of nuclear techniques*. Interests groups were

IUPAC Analytical Chemistry Division

established under the new project oriented IUPAC structure. They are expected to reflect the current core interests of the Division and to foster creation of new projects. However, Interest Groups are not aimed to replace any of the Sub-committees or Working Groups and they serve for the biennium when they will be reviewed and terminated or prolonged as appropriate.

The Division continued to publish its newsletter *Teamwork*, as one of the main sources of information within the Division members as well as with other IUPAC Divisions and Committees. Being available on the IUPAC web page <http://old.iupac.org/divisions/V/Teamwork/index.html>, *Teamwork* is also freely available for everybody interested.

b) Facilitating the advancement of research in the chemical sciences through the tools that it provides for international standardization and scientific discussion:

Beside the IUPAC Technical Reports and Recommendations resulting from projects run by the Division (listed in IV.1 and IV.4), the Compendium of Analytical Nomenclature - Orange book, the Solubility Database and the Stability Constants Database, as well as the k_0 -NAA database, remain to be the main Division tools of general interest for analytical chemistry community. However, critical review of [Orange Book](#) coordinated by the Division Secretary revealed a need of complete revision of this document. Revision of the Orange Book is foreseen to be the most important activity for the near future with the involvement of all Division Committee Members. A dedicated one day workshop on Orange Book revision is planned during the IUPAC GA in Glasgow (See also III).

The IUPAC [Stability Constant Database](#) (SCDB) is the most comprehensive compilation of stability constants available, covering the years 1877 to 2005. It is the primary source of data for the Critical Evaluations of Stability Constants that are published on a regular basis by Division V. It is a major research tool for those involved in the equilibrium modelling of environmental, biological and industrial systems. The future of SCDB was the subject of a Division V presentation to the Bureau meetings in 2004 and 2007. All aspects of the management of the database — program development, data conflation, advertising, marketing — have for the last 16 years been undertaken on behalf of IUPAC by the developers of the current database, Academic Software. In 2007 this company has indicated that it wishes to transfer the responsibility for management and maintenance of SCDB to IUPAC within about 2 years. Division V formed a consultative team to work with Academic Software to achieve a successful transition of management of SCDB from Academic Software to IUPAC or an alternative external systems manager. Further, the Division was represented by Kip Powell on the Secretary-General's *ad hoc* committee that had as its Terms of Reference: "To explore requirements to achieve a modernized interactive IUPAC web site and an ability for IUPAC to provide large databases of value to chemists". The work of this committee led to the current developing arrangements with FIZ-Chemie. It can be reported now that agreement was reached with the IUPAC Bureau that the database will be frozen as soon as collection of literature data for 2006 is completed. For the future the database will be made available to users through IUPAC as a frozen compilation. Division V is ready to support further work compilations if such a need will be identified in the future.

Regarding [\$k_0\$ -NAA database](#) contacts were established with the the BIPM Consultative Committee for Ionizing Radiation (CCRI) and the International Atomic energy Agency (IAEA) regarding future updates and developments. The Division expressed interest for further cooperation and for further hosting this database.

c) Assisting chemistry-related industry in its contribution to sustainable development, wealth creation, and improvement in the quality of life:

In understanding the role measurement results produced by analytical chemists play in international trade and in helping lowering barriers to trade, the following projects of Analytical Chemistry Division deserve special attention, namely, the *Metrological Traceability of Measurement Results in Chemistry* and the interdivisional project on Comparable pH Measurements by Metrological Traceability. The first project is aimed to establish common understanding of metrological traceability and to describe common concepts as

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prerequisite for comparability of measurement results, while the second one already utilizes given concepts and applies them to the most frequent chemical measurement – measurement of pH. The third, recently initiated WPHQA project is titled *Investigating out-of-Specification Test Results of Chemical Composition Based on Metrological Concepts*, which is aimed in developing a guide for identification of root causes of out-of-specification (OOS) test results of chemical composition based on metrological concepts. The guide should be helpful for full-scale investigation of OOS test results, already detected according to existing requirements in pharmaceutical and other industries. Another WPHQA project of relevance to industry is *Trace Element Analysis – Role of Particle Size Distribution in Solid Reference Materials*, which is very important for reference materials production in assuring ‘commutability’ of reference materials.

d) Fostering communication among individual chemists and scientific organizations, with special emphasis on the needs of chemists in developing countries.

Members of the Analytical Chemistry Division have been actively involved and have cooperated with the following organizations and bodies: the International Committee on Weights and Measures/Consultative Committee on the Amount of Substance (BIMP/CCQM); the ISO-Committee on Reference Materials (ISO/REMCO); the International Committee on Weights and Measures/Joint Committee for Guides in Metrology (BIPM/JCGM) Working Group 1 and Working Group 2; Inter-Agency Meeting (IAM); the Joint Committee on Traceability in Laboratory Medicine (JCTLM), the Cooperation on International Traceability in Analytical Chemistry (CITAC), etc. One of the most important documents published during this biennium in which Division members were actively involved is the 3rd Edition of the *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*. IUPAC was together with BIPM, IEC, IFCC, ILAC, ISO, IUPAP and OIML one of eight international organizations, which worked together in producing this document under the coordination of the Working Group 2 of the Joint Committee for Guides in Metrology (JCGM/WG 2).

e) Utilizing global IUPAC perspective and networks to contribute to the enhancement of chemistry education, the career development of young chemical scientists, and the public appreciation of chemistry.

The Analytical Chemistry Division continued to be actively involved in the IOCD project *Standardization of analytical approaches and analytical capacity building in Africa*. Also, as indicated in paragraphs V.5 and V.6, Division members have organized or have been involved in numerous seminars, workshop and conferences in various parts of the world.

f) IUPAC will broaden its national membership base and will seek the maximum feasible diversity in membership of IUPAC bodies in terms of geography, gender, and age

The current and proposed 2010-2011 Division memberships are well balanced regarding geographical distribution, gender and diversity of scientific fields. However, there is still room for improvement regarding involvement of young chemists in projects and other Division activities.

III Other information

In 2008-2009 biennium the WPHQA and SSED have after many years changed their Chair persons. This means that simultaneously with the change of Division Officers all leading positions of the Division have in 2008 been newly occupied.

At the Division last Division Committee meeting in February 2008 in Rome it was confirmed that the Orange Book will remain one of the most important Division products. In this line the Division will focus its efforts on the revision of the complete Orange Book, which should then continuously be updated and should serve as a source of information for the IUPAC Gold Book. Selection of new Division Members should take this into account in assuring that all fields of analytical chemistry will be properly covered.

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IV Tabular material

IV.1 IUPAC Recommendations and Technical Reports 2008-2009

Performance evaluation criteria for preparation and measurement of macro and microfabricated ion-selective electrodes (IUPAC Technical Report)

Pure Appl. Chem., Vol. 80, No. 1, pp. 85–104, 2008.

Glossary of terms related to solubility (IUPAC Recommendations 2008)

Pure Appl. Chem., Vol. 80, No. 2, pp. 233–276, 2008.

Countercurrent chromatography in Analytical chemistry (IUPAC Technical Report)

Pure Appl. Chem., Vol. 81, No. 2, pp. 355–387, 2009.

IV.2 Conference proceedings

30th International Conference on Solution Chemistry (ICSC 30), Perth, Australia, 16–20 July 2007 2008, (E. Königsberger, editor)

Pure Appl. Chem. Vol. 80, No. 6 (dedicated issue)

International Symposium on Metallomics 2007 (ISM 2007), Nagoya, Japan, 28 November–1 December 2007, (H. Haraguchi, editor)

Pure Appl. Chem., Vol. 80, Issue 12, 2008 (dedicated issue)

Challenges to metallomics and analytical chemistry solutions (Sandra Mounicou and Ryszard Lobinski)

Pure Appl. Chem., 2008, Vol. 80, No. 12, pp. 2565-2575, 2008.

IV.3 Books

D. B. Hibbert, *Quality Assurance for the Analytical Chemistry Laboratory*, Oxford University Press, 2007.

IV.4 Current projects

2008-031-1-500: Methods of measurement and evaluation of natural antioxidant capacity/activity

2008-025-1-500: Humic-metal binding constants database

2008-030-1-500: Investigating out-of-specification test results of chemical composition based on metrological concepts

2008-008-1-500: An introduction to the IUPAC-NIST Solubility Data Series: Preparation and use of compilations and evaluations

2008-002-1-500: A glossary of concepts and terms in chemometrics

2007-039-1-024: Extension of ThermoML - the IUPAC standard for thermodynamic data communications

2007-041-1-500: Mechanistic aspects of chemical vapor generation of volatile hydrides for trace element determination

2007-044-1-500: Solubility data related to industrial processes. Solubility in systems with lithium and/or sodium nitrates

2007-047-1-500: Solubility data related to industrial processes. Nitriles C+3: binary and multicomponent systems

2007-046-1-500: Solubility data related to industrial processes. Mutual solubility of esters with water

2007-045-1-500: Solubility data related to industrial processes. Solubility of higher alkynes in liquids

2007-010-2-500: International harmonized protocol for standard preparation, irradiation and measurement for assuring metrological traceable results in neutron activation analysis

2006-026-1-500: Electrochemical DNA-based biosensors: terms and methodology

2006-039-2-600: Extraction and fractionation methods for exposure assessment related to trace metals, metalloids and hazardous organic compounds in terrestrial environments

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- 2006-037-1-500: Metal-focused -omics: guidelines for terminology and critical evaluation of analytical approaches
- 2006-034-1-500: The solubility of oxygen in all solvents (update of SDS vol 7. 1981)
- 2006-033-1-500: Solubility data related to industrial processes. Rare earth metal chlorides (Sc, Y, lanthanoids) in water and aqueous systems
- 2006-032-1-500: Solubility data related to industrial processes. Mutual solubility of ethers and ketones with water
- 2006-022-1-500: Spectrochemical Analysis - Conversion of Orange Book Chapter 10 to Glossary Format
- 2006-016-1-200: Recommendations for isotope data in geosciences
- 2006-010-1-500: Adjustment, estimation and uses of equilibrium reaction constants in aqueous solution
- 2005-041-2-500: Determination of selenomethionine in selenized yeast supplements
- 2005-035-2-500: Trace elements analysis: role of grain size distribution in solid reference materials
- 2005-048-2-100: Solubility and thermodynamic properties related to environmental issues
- 2005-033-1-500: Transition and 12 to 14 main group metals, lanthanide, actinide and ammonium halates Series: Solubility Data Series; editor-in-chief: Mark Salomon
- 2005-024-2-600: Establishment of guidelines for the validation of qualitative and semi-quantitative (screening) methods by collaborative trial: a harmonized protocol
- 2005-019-2-500: Selection and use of proficiency testing schemes for limited number of participants (chemical analytical laboratories)
- 2005-017-1-500: Glossary of terms related to solubility - updates and revisions to the Orange Book
- 2005-014-1-500: IUPAC Stability Constants Database - completion of data collection up to 2006
- 2004-005-2-500: Comparable pH measurements by metrological traceability
- 2004-017-1-500: Standardization of analytical approaches and analytical capacity-building in Africa
- 2003-056-2-500: Standard definitions of terms relating to mass spectrometry
- 2003-015-2-500: Terminology, quantities and units concerning production and applications of radionuclides in radiopharmaceutical and radioanalytical chemistry
- 2002-058-1-500: Definitions and fields of application of the terms robust and rugged and the characteristics or qualities of robustness and ruggedness in analytical chemistry
- 2002-044-1-500: Solubility data related to industrial processes. Carbon dioxide in aqueous non-electrolyte solutions
- 2002-038-1-500: Solubility data of compounds relevant to human health. Antibiotics: peptide antibiotics and macrocyclic lactone antibiotics
- 2002-037-1-500: Solubility data of compounds relevant to human health. Solubility of halogenated aromatic hydrocarbons Series: Solubility Data Series; editor-in-chief: Mark Salomon
- 2002-036-1-500: Solubility data of compounds relevant to human health. Solubility of hydroxybenzoic acids and hydroxybenzoates
- 2002-035-1-500: Solubility data of compounds relevant to human health. Solubility of substances related to urolithiasis
- 2002-032-1-500: Solubility data of compounds relevant to mobility of metals in the environment. Metal carbonates (Mn, Fe, Co, Ni, Cu, Zn, Ag, Cd, Hg, Pb)
- 2002-031-1-500: Solubility data of compounds relevant to mobility of metals in the environment. Alkaline earth metal carbonates
- 2002-025-1-500: Solubility data of compounds relevant to mobility of metals in the environment. Inorganic actinide compounds
- 2002-009-2-500: Optical spectrochemical analysis using waveguides and optical fibers
- 2001-072-1-500: Low activation materials for fusion technology: state and prospects
- 2001-063-1-500: Revision of terminology of separation science
- 2001-010-3-500: Metrological traceability of measurement results in chemistry (revised title)
- 1999-050-1-500: Chemical Speciation of Environmentally Significant Heavy Metals and Inorganic Ligands

IV.5 Conferences/Symposia

The 13th International Symposium on Solubility Phenomena and Related Equilibrium Processes (13th ISSP) was held at Trinity College Dublin, Ireland, from July 27th to 31st, 2008. This was the latest in a

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successful series of biennial meetings that bring together scientists from diverse areas where solubility and associated equilibria play important roles. The 13th ISSP continued the tradition of multidisciplinary with contributions ranging from theory and modelling, biological systems, industrial processes, environmental chemistry and geochemistry among others.

IV.6 Lectures and seminars

Seminars on the new International Vocabulary of Metrology (VIM 3) were given by P. De Bièvre in: Gaithersburg, USA, National Institute for Standards and Technology, 24 October 2008; Helsinki, Finland, National Institute for Metrology of Finland (MIKES) on 3 February 2009, and Labquality Days on 25 February 2009. Bangkok, National Metrology Institute of Thailand, 24 to 27 March 2009; and Singapore, Health Science Authority, 30 March 2009:

Lectures on the redefinition of the kilogram and the mole were given by P. De Bièvre in: Bangkok, Kasetsart University, 27 March 2009; and Singapore, National University of Singapore, 31 March 2009.

Seminar 'Traceability in Chemistry', 26 February 2008, Rome, Italy
Lecturers: R. Dybkaer, P. De Bièvre, and M. Sega

Lecture on Introduction to IUPAC and other relevant guidance documents was given by A. Fajgelj at the APLAC Workshop on Reference Materials Producers Assessors Training Workshop, Hong Kong, 17 to 19 November 2008.

IV.7 Workshops

IUPAC-SSED Workshop on Metrological Traceability of Solubility Data, 28 February 2008, Rome, Italy
Lecturers: D. B. Hibbert, H. Gamsjäger, M. Costa-Gomez, and D. Knox.

IUPAC-WPHQA Workshop on Trace Element Analysis: Role of Particle Size Distribution in Solid Reference Materials, 29 February 2008, Rome, Italy
Lecturers: M. Belli, A. Sahuquillo, P. de Zorzi, Z. Mester, U. Sansone, and A. Fajgelj

IUPAC Workshop on Metrology, Chinese Academy of Metrology Science (CAMS), Beijing, China, 21 November 2008
Lecturers: A. Fajgelj, B. Hibbert, W. Lund, and Hongmei Li

International Union of Pure and Applied Chemistry

A member of the International Council of Scientific Unions

Division VI “Chemistry and the Environment” (DCE)

President: Nicola Senesi

REPORT on Activities 2008 and first part of 2009

I. HIGHLIGHTS

I.1 Terms of Reference

Through its internationally recognized membership and project teams, the Division of Chemistry and the Environment (DCE) will provide unbiased and timely authoritative reviews on the behavior of chemical compounds in the environment and food. The DCE will undertake both fundamental and applied evaluations that contribute to solving environmental problems and enhancing the quality of environment and food on a global scale.

I.2. People

The Division Committee (DC) is currently (biennium 2008-2009) comprised of 27 members: 10 TM's, 6 AM's, and 10 NR's and 1 PM, and includes representatives of 23 countries. Each region of the globe is well represented, with the exception of Latin America. The DC includes 5 women and representatives from scientifically emerging countries.

The Division has completed the IUPAC election process for the 2010-2011 biennium according to deadlines indicated by IUPAC. A roster of 10 TMs, 6 AMs, 10 NRs and 1 PM has been provided in due time to IUPAC Secretariat and approved by the Bureau.

The work of the Division Committee is assisted by the efforts of four sub-committees, which help identify new priority project areas, stimulate proposals, recruit potential project leaders, and facilitate external communication encompassing the broad areas of environmental and food chemistry:

- Biophysical-Chemical Processes in Environmental Systems (Chair: Prof. Nicola Senesi)
- Chemistry of Environmental Compartments (Chair: Dr. Hemda Garelick)
- Crop Protection Chemistry (Chair: Dr. Ken Racke)
- Food Chemistry (Chair: Dr. Patrick Dysseler)

I.3. Projects

Projects sponsored by the DCE generally are comprised in three broad categories.

First, the expertise within the DCE subcommittees is used to coordinate and develop state-of-the-art **authoritative reviews** of a particular area of environmental chemistry, which are generally published in book form. To this end, the Division has a long-standing working partnership with Wiley Press with two book series currently in production, the one on “Analytical and Physical-Chemistry of Environmental Systems” and the other on “Physical-Chemical Processes in Environmental Systems”, both edited by former and actual DCE members. Top international experts are recruited to contribute the chapters of each volume in the Series. Eleven volumes have been published so far in the former

Series, and one volume in the latter one. In the new series “Physical-Chemical Processes in Environmental Systems”, one volume is currently in production by the Publisher Wiley with expected publication in August 2009, and another one is currently in advanced state of preparation, both as part of specific DCE projects, and a third one will be submitted in the course of the year 2009 to the DCE as a project proposal. One added benefit of this cooperative approach with Wiley is that book royalties are credited back to the DCE so that it may sponsor additional projects in the series.

Second, **technical evaluations**, which are traditional IUPAC projects that focus on critical assessment and development of specific recommendations for an area of environmental or food chemistry so as to assist and influence research, regulatory approach, and public policy. Primary areas of emphasis include definitions, methodologies, and regulations.

Third, **outreach** activities, which help move IUPAC project outcomes outside the small circle of specialists and into the broader scientific and regulatory arena, with a strong emphasis on technology transfer to developing countries. In addition to standard IUPAC sponsorship of relevant chemistry conferences, DCE has made strong efforts to actively plan and organize both international congresses and regional workshops that are designed not only to bring together leading scientists and regulators to exchange and debate their latest findings, but also to highlight key IUPAC projects and project outcomes. Multiple and high levels of IUPAC involvement are maintained, from the organizing and scientific committees to individual lectures highlighting IUPAC projects.

At the moment there are **29** active projects, including **10** that are interdivisionally sponsored and **1** sponsored also by the PC (see below IV. Tabular Material). Most of the projects are demonstrating good progress, although some of these have asked for formal extensions. An additional **4** project proposals are under review with funding decisions expected in the Division meeting to be held during the IUPAC GA to be held in August in Glasgow.

I.4. 42nd IUPAC Congress, 3-7 August 2009, SECC, Glasgow

The DCE is responsible of the organization of a two half-days Symposium to be held within the Congress, with the title “Analytical and Risk Considerations for Emerging Environmental Issues. The Convener, the Scientific Committee of the Symposium and 7 of the invited lecturers are TMs and AMs of DCE. The International Union of Soil Sciences (IUSS) has been invited to collaborate in the organization.

I.5. Interdivisional Cooperation

Within IUPAC, DCE shares **11** interdivisional projects with Divisions I, III, IV, V, and VII. A representative of DCE is present in the Subcommittee on Green Chemistry of Division III (now proposed as an Interdivisional Committee), CCE, ICTNS, COCI, CODEX, PAC.

We are planning to strengthen and expand the interdivisional collaboration by sharing support of more projects and conferences of mutual interest.

I.6. External Collaboration

The DCE is maintaining historically strong collaboration with a number of external bodies including several CODEX committees, FAO, International Standard Organization (ISO), Intergovernmental Forum on Chemical Safety (IFCS), and ICSU Scientific Committee on Problems of the Environment (SCOPE). DCE has recently moved to increase collaboration with the WHO International Program on Chemical Safety (IPCS), Association of Official Analytical Chemists (AOAC), International Organization for Chemistry in Development (IOCD), and International Union of Soil Sciences (IUSS).

I.7. Budget (as of 1 January 2008)

For the 2008-2009 biennium the Division was granted \$68,000 total budget. Of this, up to 36% is being spent on operations (authorized), mostly to subsidize travel of AM's and NR's to attend the annual DC meeting in 2008 and the IUPAC Congress in Glasgow in 2009, and up to 64% is allocated for funding new projects or project extensions. So far, a total of \$34,000 or 50 % has been committed to funding of newly approved projects, with an actual residue of about \$ 9,500. In addition to the biennial Divisional budget, active projects will attract supplemental funding from the IUPAC Project Committee (\$ 12,000 have already been assigned to two projects, 2007-050-2-600 and 2008-003-3-600), and matching funds from external organizations during 2009. Finally, book royalties will be granted to the Division for new project development by Wiley based on the ongoing book contracts. A residue of \$2,264 book royalties is remaining available from the biennium 2006-2007.

II. OVERALL REPORT

II.1. REPORT ON DIVISIONAL ACTIVITIES

Some relevant current and planned project activities of DCE in the biennium 2008-2009 are provided below in relation to several of the long-range goals established by IUPAC. This list should provide insight into the project areas of greatest involvement for the Division.

2.1 IUPAC will provide leadership as a worldwide scientific organization that objectively addresses global issues involving the chemical sciences.

- ***Remediation Technologies for Removal of Arsenic from Water and Wastewater*** (2003-017-2-600). **Project completed in 2008.** The impetus for this project was the apparent toxicity of water supplies in several regions through natural arsenic contamination affecting the health of millions of residents, and the urgent need to reduce arsenic levels in drinking water supplies and, in some areas, irrigation waters. Although several technologies have been proposed, this project has addressed important issues such as evaluation, especially for routine treatment, of large volumes of water, and agreement on assessment criteria. A final report outlining the issue, providing a critique of remediation technologies, and containing case studies for Bangladesh and Thailand has been completed and published as a special volume in the series *Reviews of Environmental Contamination and Toxicology*.

- ***Evaluation of Food and Feed Safety Implications of Altered Residues of Pesticides Applied on Transgenic Crops*** (2006-015-3-600). **On-going, Project deadline Dec 2010.** Production of a sustainable global food supply has for the past 60 years relied upon a combination of cultural, biological, and chemical pest management tools. The recent introduction of transgenic crops containing genetic modifications for pest resistance or pesticide tolerance across millions of hectares of agricultural land has raised worldwide interests and significant differences of views between countries as relates to potential environmental and human health impacts. This active project will provide unbiased and authoritative international views to these areas of concern based on scientific assessment methodology, and provide an opportunity for IUPAC to take an important leadership role in promoting the importance of chemistry in applied molecular biology. This project is a follow-up project of a previous one emphasizing environmental impacts, and was initiated during 2007 to address primarily human health aspects.

• ***Air Pollution Models in Environmental Management and Assessment*** (2003-058-1-600). **On-going, Project deadline July 2009.** The Division has had a historical strength related to atmospheric chemistry and air pollution considerations. Air pollution models are powerful and necessary tools in environmental management programs and predictions. The aim of this project is to describe the methodology behind application of mathematical models in various assessments of air pollution impacts. The outcome of the project will be a technical guidance book describing key approaches and providing guidelines for avoiding incomplete or even incorrect answers when models are applied.

2.2 IUPAC will facilitate the advancement of research in the chemical sciences through the tools that it provides for international standardization and scientific discussion.

• ***What are Dietary Fibres?*** (2007-017-1-000). **On-going, Project deadline July 2009.** During the past several years the Division has been reinvigorating activities related to food chemistry and has launched several new projects. The “dietary fibres” project will characterize the nature of dietary fibres and how they are altered as a result of food processing, and plans to offer a clear set of internationally accepted definitions.

• ***Use of Reference Soils for Testing Fate and Effects of Chemicals*** (2001-026-1-600). **Project completed in 2008.** There is difficulty comparing results of environmental tests on the behavior of chemicals due to the use of different soils with various physical, chemical, and biological characteristics. This project aimed to develop recommendations related to selection of standardized, reference soils so as to allow greater comparability of tests conducted on different chemicals and in various laboratories. The results have been published in “Trends in Analytical Chemistry, Vol. 28, n.1, 2009. An extended abstract is in publication in Chemistry International.

• ***Biophysical-Chemistry of Fractal Structures and Processes in Environmental Systems.*** (2003-014-2-600). **Project completed.** This is volume No. 11 of the continuing publication of multi-chapter critical-reviews ***Wiley-IUPAC Book Series “Analytical and Physical Chemistry of Environmental Systems”*** (Series Editors: J. Buffle and H. Van Leeuwen). The current project has also produced a Workshop during the European Geoscience Union (EGU) Congress held in Wien on 13-20 April 2008 as Session n. 28 of the Soil Science Systems (SSS) Division of EGU on 18 April. The oral session comprised five invited lectures presented by authors of the volume, and the poster session included several volunteered submission.

• ***Wiley-IUPAC Book series “Physical-Chemical Processes in the Soil Environment”*** The first volume has been produced by the end of 2007 based on the project “*Biophysical-Chemical Processes of Heavy Metals and Metalloids in Soil Environments*” (2004-003-2-600). A second volume is now in production by the Publisher Wiley via the project “*Biophysical-Chemical Processes Involving Natural Nonliving Organic Matter in Environmental Systems*” (2006-014-1-600) with **publication expected by August 2009.** A third volume “*Biophysical-chemical processes of anthropogenic organic compounds in environmental systems*” (2008-001-1-600) has been approved and is now in advanced state of preparation with a **deadline 31 Dec 2010.** The highest academic standards are being maintained also in this volume through the careful selection of the chapter authors and thorough review and editing procedures.

• ***Combination of Chemical Analytical Measurements and Remote Sensing Techniques for Coastal Water Monitoring.*** (2006-049-2-600). **On-going, Project deadline July 2009.** The objectives of this project are to record the state of the art in remote sensing techniques and methods used for

marine environment monitoring, and to assess the potential combination of remote sensing data with in situ and laboratory monitoring. Case studies based on the Eastern Mediterranean and Black Sea regions will be developed.

2.3 IUPAC will assist chemistry-related industry in its contribution to sustainable development, wealth creation, and improvement in the quality of life.

DCE will maintain an interest in the Green Chemistry area, and strengthen its contribution through the proposed institution of an Interdivisional (Divs. I, III, V, VI) Committee.

2.4 IUPAC will foster communication among individual chemists and scientific organizations, with special emphasis on the needs of chemists in developing countries.

- ***Development of Simplified Methods for Ecological Risk Assessment of Pesticides*** (2004-011-1-600) **Project completed in 2008**, and ***Environmental Risk Assessments for the Registration of Pesticides used in Rice Paddy Fields*** (2006-044-2-600) **On-going, Project deadline April 2009**. Risk assessment involves integration of chemical exposure information with effects data to determine the likelihood of adverse effects. Scientists and regulatory authorities in developing regions increasingly wish to rely on this advanced approach in order to make informed risk management decisions related to the use of pesticides, and IUPAC is developing guidance on application of these principles within the agricultural context and level of information available in these countries. The “simplified methods” project addresses a critical gap that now exists between the highly sophisticated and resource-intensive approaches to risk assessment practiced in some developed countries with the unreliable or non-scientific consideration of exposure and risk that plagues many developing countries. A project team consisting of leading government, industry, and academic modellers and risk assessment experts has been assembled to make rapid progress. In particular, the “pesticides in rice” project aims to develop a specific framework for assessment of pesticides for use in this highly important crop.

- The ***IUPAC International Symposium on Mycotoxins and Phycotoxins*** has been hosted for more than 30 years. Although much scientific and public attention is directed at chemistry and human exposure aspects of synthetic chemicals in food, natural toxins are far more prevalent and potentially impactful for the majority of the world’s population. IUPAC has had a longstanding interest in mycotoxins and phycotoxins, and this symposium will be the next in a series that has become the premiere forum for exchange of research results and methodologies related to these important naturally occurring toxins. The traditional strength of IUPAC as related to the chemistry aspects of these biotoxins has been an important factor in the success of this series. The XII Symposium was held in Istanbul, Turkey during May 2007. The XIII IUPAC International Symposium on Mycotoxins and Phycotoxins is in preparation for 2010. These symposia typically attract more than 300 participants from 40+ countries.

- ***IUPAC Regional Crop Protection Chemistry Workshops***. During the past 20 years the Division has sponsored a series of regional workshops focused on broadening the adoption of harmonized, international approaches to crop protection chemistry research and regulation in developing countries. The workshops create a forum where IUPAC project outcomes as well as recommendations from other international bodies can be discussed and applied within the context of local environmental problem areas. Following successful sessions in China, Thailand, Taiwan, Brazil, Korea, Costa Rica and China last year, the 8th workshop is planned for Brazil during 2009 as part of the in-review project proposal “*Crop Protection Chemistry in Latin America: Environment, Safety, and Regulation- 3rd International*

Workshop” (2007-057-1-600) **On-going, Project deadline 31 Dec 2010**. The Workshop is expected to bring together the diverse regional stakeholders in crop protection chemistry from the research and regulatory communities.

- ***Lecturers on Environmental Chemistry Topics***. The Division is more and more active in identification of important conferences for IUPAC sponsorship and planning for involvement of IUPAC Lecturers. The objectives for involving the IUPAC Lecturers are to publicize relevant findings of recently completed IUPAC Projects and to recruit new project proposals and task group members from scientifically emerging regions. Three IUPAC lecturers from Australia and USA have presented plenary lectures at the *First International Conference on Agrochemicals Protecting Crop, Health, and Natural Environment* held in Delhi, India during January 2008. Additional lectures at universities has followed. Two IUPAC lecturers from Canada and New Zealand presented plenary lectures at the *International Symposium of Interactions of Soil Minerals with Organic Components and Microorganisms* which was held in Pucón, Chile, during November 2008. The lecturers have also visited local universities to provide more detailed presentations. The *International Symposium of Molecular Environmental Soil Science at the Interfaces of the Earth’s Critical Zone (ISMESS 2009)*, to be held in Hangzhou, China, October 10-14, 2009 has been supported for two IUPAC lecturers (one from USA and one from UK) by IUPAC-Program Conferences in New Directions in Chemistry upon endorsement of DCE.

- The ***IUPAC International Congress of Pesticide/Crop Protection Chemistry*** has been hosted for more than 40 years. The 11th IUPAC International Congress of Pesticide Chemistry was held during August 2006 in Kobe, Japan, and it was co-organized with the Pesticide Science Society of Japan (PSSJ). More than 1100 chemists from 52 countries participated in the Congress, which was organized around the theme “Evolution for Crop Protection, Public Health, and Environmental Safety”. The core of the scientific program consisted of welcoming speeches on behalf of PSSJ and IUPAC, 5 keynote addresses, more than 100 invited lectures, and nearly 600 posters. The Congress included an outreach program to consumer groups and the media which drew nearly 400 additional, non-chemist participants. Two strong bids for future Congress locations were received, and the Division recently agreed to organize the 12th IUPAC International Congress of Pesticide Chemistry for July 2010 in Melbourne, Australia in cooperation with the Royal Australian Chemical Institute.

- The ***42nd IUPAC Congress, 3-7 August 2009, in Glasgow***. DCE is organizing a two half-days Symposium to be held within the Congress, with the title “Analytical and Risk Considerations for Emerging Environmental Issues”. The Convener, the Scientific Committee of the Symposium and 7 of the invited lecturers are TMs and AMs of DCE.

2.5 IUPAC will utilize its global perspective and network to contribute to the enhancement of chemistry education, the career development of young chemical scientists, and the public appreciation of chemistry.

DCE has not had a strong direct role in chemical education but in its sponsorship of international symposia, congresses and workshops (see above and below) there is an emphasis on providing avenues to support young scientists and materials that are useful in educating, publicising and promoting particular areas of chemistry. DCE will maintain a permanent representative in the CCE.

2.6 IUPAC will broaden its national membership base and will seek the maximum feasible diversity in membership of IUPAC bodies in terms of geography, gender, and age.

DCE maintains a broad membership base through the organization of its core activities through four advisory panels (the subcommittees), which have wide geographical (about 40 countries including several scientific emerging ones), gender (14 women), and age distributions, and include, besides the TMs, AMs and NRs, a range of interested active scientists without official titles.

III. OVERALL STRATEGY . FUTURE OPPORTUNITIES, ISSUES AND DIRECTIONS

To remain effective and maintain relevance, the Division will need to pay attention to both current strengths and weaknesses of the IUPAC approach, and seek a way forward that takes advantage of the opportunities while avoiding looming threats.

- **Strengths** – Global audience; international, rather than a national/regional, viewpoint and approach; good productivity; important issues for society; credibility; networks (individuals, institutions, cross disciplines); possibility for projects to garner external funding; wide breadth (scholarly, applied, workshops/symposia); subcommittees contributing bring new issues, projects and people to IUPAC.
- **Weaknesses** – Token in-house funding; reliance on enthusiasm and availability of volunteers; high dependence on single individuals (i.e. task group leader); length for project performance and completion; lack of recognition for individual efforts; low impact/visibility for PAC.
- **Opportunities** – Increase credibility through higher impact projects (planning and outputs); increase input from developing countries; more emphasis on food chemistry (functional foods); increase partnerships with other international organizations; seek more interdivisional projects; make better use of electronic media (web, email); attract funding from multiple sources to make more viable projects.
- **Threats** – Loss of relevance; losing intellectual property to collaborating organizations; having Division direction driven by randomly submitted project proposals; having lead on key areas taken by other organizations; slowness in addressing key issues of interest and project areas; not reaching the intended audience; conflicts of interest in funding decisions; inability to define and measure success.

The Division Committee recently took the first steps toward development of a long-range Division activities plan in alignment with the IUPAC long-range goals. Key future areas of interest for the Division in its operations are listed briefly below, and these are expected to be the subject of intense discussions during the next DCE meeting to be held during the GA in Glasgow in August 2009.

- **Maintenance of a diverse membership and participation in Divisional activities** – It will be important for the health of the Division to continue to maintain diversity of representation for areas of disciplinary emphasis, affiliation, geographic origin, age, and gender. This need for diversity also applies to the activities of Division sub-committees and project task groups. There is in particular a need to increase participation in Divisional programs from Latin American, Middle Eastern, and African countries. There is also a tendency for an under-representation of IUPAC contributors from the industrial sector, and greater efforts are needed to ensure adequate participation of industry chemists.

- Selection of new members – A large amount of DC energy has been devoted to the biennial election process for covering eight (over ten) TM positions, which terminate with the biennium 2008-2009, for the 2010-2011 biennium. The election process is now completed for the 2010-2011 biennium according to deadlines indicated by IUPAC. A roster of 10 TMs, 6 AMs, 10 NRs and 1 PM has been provided in due time to IUPAC Secretariat and approved by the Bureau. However, the 2-year term of TM, AM and NR seem too short to allow significant contributions.
- Continued generation of project proposals – A continued flow of high quality project proposals is critical to the future effective contributions of the Division. A good number of new proposals have been received for consideration during the current biennium, and most of them approved, with several still in review. In addition, although conference proposals come from many quarters, project proposals primarily originate from those with some familiarity with IUPAC. Today's chemists face many choices for project involvement at the national and regional levels. The Division needs to find creative ways to continue to identify relevant new project topics and solicit proposals from interested and enthusiastic chemists willing to lead and serve in IUPAC task groups.
- Timely completion of ongoing projects – About 30 active projects are now supported by the Division, and the Division collects regular progress reports so as to allow monitoring of project progress. It is important that IUPAC projects are completed within a reasonable time so as to produce relevant and useful findings. Decisions to accelerate (e.g., top-up funding) or abandon several of the older, slower-moving projects will be needed in near future.
- Continued ramp-up of food chemistry activities – One immediate outcome of the long-range planning exercise involves a continuing effort to reinvigorate the area of food chemistry. A new subcommittee is charting a renewed direction that brings to bear the traditional strengths of the Union with contemporary issues and problems related to food chemistry. As a result, food chemistry activities are increasing following a lull of several years, and three active projects on food chemistry are now active and well in progress.

Despite its overall integrated approach, the Division will also operate sectorially to address customer needs:

- **Protection objectives** - (which are partly the basis for the DCE subcommittees) including air, water, soil and food with (integrated) risk assessments and management options. Collaboration with external bodies and other IUPAC Divisions, for example Division VII for human risks, will be essential to deal authoritatively with such issues.
- **Scientific approaches to study processes**, the advancement of methodology, the concepts of chemical safety and chemical hazards, with a focus on environmental fate, food and environmental analytical chemistry, modelling environmental processes. Also to implement these issues authoritatively, collaboration with external bodies and other IUPAC Divisions, for example the Division of Analytical Chemistry, will be essential.
- **Chemicals groupings**, including bulk and fine chemicals, agrochemicals (of continuing high relevance), pharmaceuticals and veterinary drugs, natural toxicants (to expand from mycotoxins), biochemicals and the chemical safety of genetically modified organisms (environment and food). The combined efforts in conjunction with external bodies and pertinent IUPAC Divisions will surely strengthen these activities.

IV. TABULAR MATERIAL

SUMMARY OF ON-GOING PROJECTS

- 1999-041-1-600 - Bioavailability of xenobiotics in the soil environment (completed in 2009)
- 2001-022-1-600 - Global availability of information on agrochemicals (ongoing)
- 2001-023-1-600 - Agrochemical spray drift: Assessment and mitigation (nearing completion)
- 2001-039-1-600 - Pest management for small-acreage crops: a cooperative global approach (nearing completion)
- 2003-011-3-600 - A critical compendium of pesticide physical chemistry data* (ongoing)
- 2003-013-1-600 - Crop protection chemistry in Latin America: Harmonized approaches for environmental assessment and regulation (ongoing)
- 2003-014-2-600 - Fractal structures and processes in the environment (completed in 2008)
- 2003-017-2-600 - Remediation technologies for the removal of arsenic from water and wastewater (completed and report in-press)
- 2003-058-1-600 - Air pollution models in environmental management and assessment (ongoing)
- 2004-005-2-500 - Comparable pH measurements by metrological traceability* (ongoing)
- 2004-011-1-600 - Development of simplified methods and tools for ecological risk assessment of pesticides (ongoing)
- 2004-017-1-500 - Standardization of analytical approaches and analytical capacity-building in Africa* (ongoing)
- 2004-022-3-400 - Terminology and measurement techniques of starch components* (ongoing)
- 2005-024-2-600 - Establishment of guidelines for the validation of qualitative and semi-quantitative (screening) methods by collaborative trial: a harmonized protocol* (continued as 2006-027-1-600) (ongoing)
- 2005-042-1-300 - Chemistry for Biology - an inventory for interdivisional and interdisciplinary activities within IUPAC in the field of biological chemistry* (ongoing)
- 2005-048-2-100 - Solubility and thermodynamic properties related to environmental issues* (ongoing)
- 2006-011-1-600 - Critical review of available methods to predict VOC emission potentials for pesticide formulations (ongoing)
- 2006-014-1-600 - Biophysico-chemical processes involving natural nonliving organic matter in environmental systems, Vol. 3 of Wiley-IUPAC book series "Physical-Chemical Processes in the Soil Environment" (ongoing)
- 2006-015-3-600 - Evaluation of food and feed safety implications of (altered) residues of pesticides applied on transgenic (GM) crops (ongoing)
- 2006-017-2-600 - Crop protection chemistry in Asia: harmonized approaches for safety evaluation, regulation, and protection of trade (ongoing)
- 2006-039-2-600 - Extraction and fractionation methods for risk assessment related to trace metals, metalloids and hazardous organic compounds in terrestrial environments* (ongoing)
- 2006-044-2-600 - Environmental risk assessments for the registration of pesticides used in rice paddy fields (ongoing)
- 2006-049-2-600 - Combination of chemical analytical measurements and remote sensing techniques for coastal water monitoring. The cases of Eastern Mediterranean and Black Sea (ongoing)
- 2007-015-2-100 - Future energy: sustainable and clean energy alternatives for our planet* (ongoing)
- 2007-017-1-600 - What are dietary fibres?*(ongoing)
- 2007-050-2-600 - Climate and global change: observed impact on planet earth (ongoing) ***

- 2007-057-1-600 - Crop protection chemistry I Latin America: environment, safety, and regulation-3rd International Workshop (ongoing)
- 2007-026-2-600 – Soils contaminated with explosives – environmental risk assessment and evaluation of state-of-art treatment processes (ongoing)
- 2008-001-1-600 – Biophysical-chemical processes of anthropogenic organic compounds in environmental systems - Vol. 3 of Wiley-IUPAC book series “Physical-Chemical Processes in the Soil Environment” (ongoing)
- 2008-003-3-600 – Regional drinking water quality assessment in the Near East (Palestinian Authority, Jordan, Israel)-An overview and perspective.(ongoing)**
- 2008-011-2-600 – Development of a pesticide ecological risk assessment and training module (ongoing)
- 2008-041-1-600 – Global availability of Information on agrochemicals (ongoing)

PROPOSED PROJECTS (UNDER REVIEW)

- 2008-039-1-600 – Waste: problems and solutions for our planet or what to do with the things we throw away.
- 2009-007-1 – Evaluation of measurement methods and QA/QC for PCDD/F, PCB and PAHs in environmental matrices (air quality, soil, sediments and wastes) used in estimation of global pollution.*
- 2009-010-1 – Requirements for proficiency testing on environmental sampling. *

* Interdivisional project

** Also supported by Project Committee

***Also submitted for support by ICSU Grant Programme 2008

LIST OF RECENT PUBLICATIONS

Technical Reports and Recommendations

- Garelick, H. “Remediation technologies for the removal of arsenic from water and wastewater.” *Rev. Environ. Contam. Toxicol.* (2008).
- Kleter, G.A.; Bhula, R.; Bodnaruk, K.; Carazo, E.; Felsot, A.S.; Harris, C.A.; Katayama, A.; Kuiper, H.; Racke, K.D.; Rubin, B.; Shevah, Y.; Stephenson, G.R.; Tanaka, J.; Unsworth, J.; Wauchope, D.; Wong, S.S. “Altered pesticide use on transgenic crops and the associated general impact from an environmental perspective.” *Pest Manag. Sci.* (2008).
- Kördel, W.; Egli, H.; Klein, M.; “Transport of pesticides via macropores.” *Pure Appl. Chem.* (2008).

Books

- Ohkawa, H.; Miyagawa, H.; Lee, P.W. *Pesticide Chemistry: Crop Protection, Public Health, Environmental Safety.* Wiley-VCH, Berlin (2008).
- Senesi, N. and Wilkinson K.J. *Biophysical Chemistry of Fractal Structures and Processes in the Environment.* John Wiley and Sons, Chichester (2008) 323 pages.
- Stephenson, G.; Solomon, K.; Carazo, E. *Pesticides in the Environment.* University of Costa Rica Press, San Jose (2008).
- Violante, A.; Huang, P.M.; Gadd, G.M. *Biophysico-Chemical Processes of Metals and Metalloids in Soil Environments.* John Wiley and Sons, New York (2008) 658 pages.

Report to Council
IUPAC General Assembly, Glasgow August 2009

Doug Templeton, President Division VII

Part I - Summary of Division Activities

This Summary deals with Division VII initiatives and structure, membership, budget, projects, highlights of Subcommittee activities, adherence to IUPAC goals (details in Part II), and current and future initiatives. Parts III and IV, provide details of projects, publications, and activities of our individual Subcommittees. In this summary, I address business arising from the 2008 meeting, and various initiatives being targeted in the current Biennium.

1. Operating procedures and rules of DVII

After lengthy consultation with the DVII Committee, a final version of our Operating Procedures was submitted to the Secretariat in early March, 2009. This has been an opportunity to re-examine our mandate in Chemistry and Human Health, and crystallize our thoughts on efficient DVII management. Two Division-specific initiatives were highlighted in appendices to that document; they are rules for declaring DVII Emeritus Fellowship, and for granting IUPAC Sponsorship on a limited Divisional basis. We also built in a provision to remove non-performing members of the Division. These three issues are described briefly here.

i) Last year we introduced a proposal to the Bureau for an IUPAC program of Emeritus Fellows, and we have proceeded to implement this plan on a Divisional basis. Emeritus Fellows must renew membership annually and express willingness to serve as an advisor or consultant, according to their schedule, if called upon by the Division or by any other IUPAC body. They are offered life-long membership within IUPAC without payment of annual dues and standard membership benefits which presently include a subscription to Chemistry International, and a standing invitation to attend Division and Subcommittee Meetings appropriate to their technical background. At the discretion of the Division Committee, some funds may be available for this when relevant expertise is sought. We do not believe it is a significant financial burden to IUPAC to provide a subscription to CI for three new individuals each Biennium, all of whom will have, typically, given several decades of volunteer service.

ii) Implementing IUPAC Sponsorship - as an outreach initiative, we will enhance and implement fully Divisional sponsorship of selected scientific meetings of relevance to the Division. Any Division Committee Member who regards this type of sponsorship to be of mutual value to a specific event that he/she has become aware of, should propose it to the Division Officers with a brief description and justification. The Officers will comment and then the Division President will make a quick decision on behalf of the Division. Divisional Endorsement does not imply any financial aid or assistance in participation. It is an endorsement of the scientific quality of the meeting, and is seen as a venue to promote Divisional objectives.

iii) Removal of non-performing members – Division Committee members who are unable to perform their duties and/or who do not participate at the levels expected for their particular type of membership, will be designated as ‘non-performing members.’

and, after appropriate attempts to contact them, termination of their appointment may occur, as outlined in our Operating Procedures.

2. Structure of the Division

DVII is organized into four Subcommittees (SCs), three of which deal with technical aspects of our mission. These are the SCs on Medicinal Chemistry and Drug Development (MCDD); Nomenclature, Properties and Units in Laboratory Medicine (NPU-LM); and Toxicology and Risk Assessment (TRA). The fourth SC manages our Public Relations and Elections (PRE). The SCs are chaired by Robin Ganellin (MCDD), Françoise Pontet (NPU-LM), John Duffus (TRA), and Tom Perun (PRE). Detailed reports of activities from each of the SCs are included in Part III.

Our executive positions consist of a President, Past President or President-elect, and Secretary. Our operating procedures mandate a four-year term for the Division President with the role of Vice President being served for the first two years of that term by the Past President and in the last two by the President-elect .

3. Membership

As we are at the mid-term of the Biennium, our roster will change in 2010. Five new TMs will begin terms in Jan. 2010. We have nominated a President-elect, and the position of Secretary from Jan. 2010 remains open. In both the current and next Biennium, we have a healthy rejuvenation of our TMs, and they represent diversity of gender, geography, and expertise with respect to our technical SCs. Our TMs and AMs have representation from Asia, Eastern and Western Europe, and North America; a gender balance; and representatives from government, industry, the private sector, and academia.

4. Budget

In the past Biennium, DVII exceeded its total budget by 8.3 % and the 30 % operations guideline by 24.3 %. This was a consequence of the Division meeting traditionally at 6-month intervals, scaled back to 9-month intervals in the latter part of the term. The desirable geographic diversity of the Division contributed to increased travel costs of meetings. In addition, we have a well-founded policy of supporting travel for our SC Chairs to attend DVII meetings. These meetings resulted in much fruitful discussion of initiatives that informed our agenda for the current Biennium, but also compromised our ability to fund several worthy projects.

As a cost saving measure, Division VII (DVII) has met once since the GA in Turin (Research Triangle Park, April 3-4, 2008), immediately following the Istanbul Bureau meeting. Much of our activity is conducted more efficiently by e-mail. I decided on this course of correction of the budgetary balance, holding one DVII meeting in RTP both as a cost-saving measure and an opportunity for our members to meet the faces behind the e-mails. We stand today well within the operations budget (at 21.6 %), and we are now actively soliciting new projects with 35 % of our total budget unspent as of May '09. We expect several new proposals will be presented for discussion in Glasgow.

We have also moved forward with productive working meetings of our SCs, funded by Project budgets. It is my expectation that each TM should chair at least one task group during their 4-year term. We are also now in a position to use resources judiciously to co-operate with other entities within IUPAC, and with cognate scientific bodies, e.g., through SAICM, and with SNOMED/IHSTDR/LOINC via our SC NPU-LM. I have also allotted a discretionary budget of \$1200 to each SC Chair to facilitate these initiatives.

5. Projects

Together the three technical SCs are currently involved in 33 ongoing projects. These are summarized in Annex 6. These, together with projects submitted or under discussion, are described in the individual SC reports and collected in Part IV. A classification of our current and recently completed projects shows the following balance (number of projects in parentheses):

Education and Training (4)

Terms and Glossaries (12)

Data Bases (3)

Drug Discovery (6)

Clinical Chemistry (8)

6. Highlights of SC activities (details are found in Part III)

6.1. MCDD – This SC remains very active, meeting approximately four times in each Biennium, in addition to regular DVII meetings. They currently manage 17 projects, all of which have arisen within the SC. The IUPAC-Richter prize is awarded by this SC every two years. The successful book “Analogue-based Drug Discovery” which went to a second printing in 2008, is being followed by a second volume at the request of the publisher.

6.2. NPU-LM - The SC has close contacts with the International Federation of Clinical Chemistry (IFCC) in maintaining a web-based generic database (NPU), of which they share ownership. They are collaborating on mapping of the database to the Systematized Nomenclature of Medicine - Clinical Terms (SNOMED-CT) through contact with the International Health Terminology Standards Development Organization (IHTSDO) in Copenhagen, and with the Logical Observation Identifiers Names and Codes (LOINC) at Indiana University. Legal arrangements are currently being negotiated for joint ownership of the harmonized data base. A major initiative with IFCC to update the IUPAC Silver Book (Compendium of Terminology and Nomenclature of Properties in Clinical Laboratory Sciences) is underway. NPU maintains representation on both Joint Committee for Guides in Metrology (JCGM) working groups WG1 (GUM – Guidelines for Uncertainty in Measurement) and WG2 (VIM - International Vocabulary of

Metrology). In Bratislava, the Bureau approved the change of name of this SC to "Nomenclature for Properties and Units (NPU)"

6.3. TRA - Projects on childhood education and several glossaries are underway. A contract was signed with the Royal Society of Chemistry to publish "Concepts in Toxicology" in 2009, and a monograph is now in press. Contacts with the WHO and its International Program in Chemical Safety (IPCS) are being established in collaboration with COCI. Participation in a Biomonitoring Equivalents Workshop established contacts with the US Environmental Protection Agency, Health Canada, and the American Petroleum Institute, among others.

6.4. PRE - This SC has been helpful in providing IUPAC material for public dissemination and branding. In the past year it has conducted our elections for new TMs, which deserves one comment on procedure. I understand it has been general practice (at least in DVII) to give all Task Group members a vote on the TM ballot. I decided to exclude them, restricting the vote to the Division Committee, for two reasons. First, our extended cadre of about 40 Task Group members includes individuals with little experience of the IUPAC structure and function. Second, the various subcommittees are unevenly represented among the Task Group members, and while I am confident that no bias based on SC affiliation exists within our Division Committee, I was not as confident about our extended family. The result was a strong consensus on the five new TMs, who will surely serve us well.

Part II - Meeting IUPAC's Goals

Goal 1. Leadership in global chemical issues - Recent highlights include publication of Properties and units in clinical and environmental human toxicology [PAC 79:87-152 (2007)], and the revised Glossary of terms used in toxicology [PAC 79:1153-1344 (2007)], whose predecessor has been adopted by a number of legislative bodies. Both are on-going initiatives of the Division. The NPU database and ongoing revision of the Silver Book are also noteworthy. Harmonization of terminology with the Danish IHSTDO/SNOMED-CT and the American LOINC is a major undertaking described in more detail in the NPU-LM report. A new IUPAC recommendation, Glossary of terms used in ecotoxicology, is scheduled to appear in 2009 in a full issue of PAC, and a book Concepts in Toxicology is in press by the RSC (UK) that is intended to clarify a number of issues relevant to risk assessment for legislators, and to the basic science of toxicology for chemists. The involvement of our SC-NPU-LM representing IUPAC as one of eight international bodies in the production of the 3rd revision of the Vocabulaire Internationale de Metrologie (VIM3), and its free access publication in 2008 is a highlight.

Goal 2. Provision of tools - As noted above, a dozen glossaries of terminology have recently been published or are currently under construction, including two new projects for a glossary in immunotoxicology and revision of terms in clinical chemistry are underway. These glossaries are of use to, among others, the WHO and the UN in

formulating policy, and the authors of the toxicology glossaries participate in WHO initiatives such as the International Program in Chemical Safety (IPCS).

Goal 3. Assistance to the chemical industry in sustainable development, wealth creation, and improving quality of life - The PRE SC is active in COCI and the TRA is forging links with external bodies in collaboration with COCI. The MCDD has a long-standing association with industry, and its projects on natural products with medicinal value, nutraceuticals in Latin American Plants, and the 2nd edition of the very successful book “Analogue-based Drug Discovery” are examples of current projects with immediate value to the chemical industry.

Goal 4. Fostering communication - Examples of particular relevance to this goal are the NPU-LM projects Internationally agreed terminology for observations in scientific communication, Mapping of IFCC-IUPAC laboratory coding system to SNOMED-CT, and Translation of NPU database elements and properties into French. The legal agreements being forged amongst NPU-IUPAC-IFCC, SNOMED-CT, and LOINC are a landmark in global harmonization of terminology. The TRA projects Concepts in Toxicology, and new glossaries in Ecotoxicology (in press) and Immunotoxicology (underway) are intended to facilitate a common vocabulary in toxicology and risk assessment.

Goal 5. Education in chemistry - Examples of our efforts to further chemical education are the recently published Fundamental Toxicology (2nd Edition), Analogue-based Drug Discovery, its follow-up volume now in progress, and the soon-to-be published Concepts in Toxicology. Ongoing projects include Training of School Children on Pesticides and Health (TRA), Research and Training in Medicinal Chemistry in the Indian Subcontinent (MCDD), and Practical Studies for Medicinal Chemistry Students (MCDD). TRA Chair John Duffus has close links with CCE and participates globally in designing and delivering toxicology curricula.

Goal 6. Public relations and diversity - The PRE SC is active in improving the visibility of DVII and of IUPAC. “Limited DVII sponsorship” is used to distribute IUPAC material and make an oral presentation on DVII activities. An example was the “Advances in Chemical Sciences Symposium” held in Boston, which was heavily attended by members of the pharmaceutical industry, who heard a presentation by the DVII Secretary. Details of this process for limited sponsorship are now formalized in the DVII operating procedures. A DVII poster has been produced to complement the individual SC posters, and is intended for presentation at international meetings. It will next appear in Glasgow, where the TRA SC is hosting a Mini-Symposium during the Chemical Congress in Aug. 2009. The IUPAC-Richter Prize adjudicated through the MCDD SC is gaining prestige, and provides an international forum for scientific presentation by the winner, with IUPAC’s name associated. The winner for 2008 was Jan Heeres, the inventor of ketoconazole and related fungicides, and he gave the IUPAC-Richter Award Lecture in Pittsburgh, Vienna, and Torquay. Our TM and AM membership in 2010 will include men and women from the 4th, 5th, and 6th decades of life, from Asia, Europe, and North America, and from industry, government, and academia.

Part III - Subcommittee Summaries (MCDD, NPU-LM, TRA, and PRE)

a. Medicinal Chemistry and Drug Development (MCDD)

Meetings: Two meetings of the Subcommittee on Medicinal Chemistry and Drug Development were held during the past year, in Pittsburgh, PA, 14 June 2008 and Vienna 30-31 August 2008, attended by 7 and 12 members respectively. The next meeting is planned for 26 March 2009 in Salt Lake City, Utah, at the time of the ACS National Meeting. Minutes have been posted on the IUPAC web-site.

Membership: We have two new members: Prof Peter Matyus (Hungary) and Dr. Noel J. de Souza (India). We have lost Dr Stephen Jaroch (Germany) who has resigned.

Projects: As previously, no new projects have arisen from proposals outside of the Subcommittee membership.

Individual Projects (in numerical order):

2000-009-1-700 Glossary of Drug Metabolism Terms. (Paul Erhardt)

Definitions are being adjusted to IUPAC format. The plan is to have the glossary available for public comment by the end of 2009.

2000-010-1-700_ Project on Human Drug Metabolism Database. (Paul Erhardt)

A prototype of the drug metabolism database has been assembled. Paul is pursuing opportunities for public funding to complete the project through the end of this year. One company from the private sector has expressed an interest in the database and discussions are ongoing.

2001-048-2-700_ Research and Training in Medicinal Chemistry in the Indian Subcontinent. (Mukund Chorghade)

A short course on medicinal chemistry is being planned to be held in India. No new information.

2001-049-2-700_ Glossary of Terms in Pharmaceutical Technology. (Eli Breuer)

Definitions have been adjusted to IUPAC format and the revised glossary was sent out to 20 reviewers and many of the suggestions returned were incorporated into the document. After responding to further comments from Jack Lorimer, the document has been accepted as an IUPAC Recommendation for publication in PAC.

2001-049-2-700_ Glossary of Terms in Pharmaceutical Process Chemistry. (Mukund Chorghade)

Definitions have been adjusted to IUPAC format. The Glossary has been submitted to the USP with a request that they review the terms.

2001-050-2-700_ Natural Products with Medicinal and Nutritional Value. (Mukund Chorghade)

Document is being edited and adjusted to IUPAC format. A review article is planned for publication in PAC.

2002-001-1-700_ Compendium of Glossaries. (Robin Ganellin)

There was continuing debate on whether to publish a collection of Glossaries in book form given the growing use of internet resources for information retrieval and the delayed availability of new glossaries. It was decided that this collection of Glossaries should be provided online, rather than as a published manuscript.

2003-044-1-700_ Glossary of Combinatorial Chemistry Terms. (A. Ganesan) The project leader has been changed (from Derek MacLean) to A. Ganesan. Derek stays on as a team member. Two new members have joined the project. No new information.

2004-019-3-700_ Glossary of Terms for Biomolecular Screening. (John Proudfoot)

A draft version of the glossary containing 152 terms has been reviewed by members of the Society for Biological Screening and it has been adjusted to IUPAC formatting requirements.

Publication as a joint recommendation from IUPAC, SBS and IUPHAR is proposed.

2004-028-1-700_ Practical Studies for Medicinal Chemistry Students. (Antonio Monge). www.iupac.org/publications/cd/medicinal_chemistry/

A printed version of the book will be produced by Dra Rosa Cattana, Universidad Nacional de Rio Cuarto, Cordoba, Argentina. It will be dedicated to Prof. Dr. Liliana Giacomelli who was a co-author of exercises (I.6, I.7, and VI.2) and who, sadly, died in an accident at work last December 2007.

2005-031-2-700_ Latin American Plants as Sources for Functional Foods (Antonio Monge)

The objective is to provide possible commercial opportunities for local industry in Latin American countries. An article for this on Functional Foods has been published in Chemistry Internat. 2008, vol 30, N°5, pp 9 -13. The intention is to follow this up with detailed articles per Latin American country and, ultimately, to combine all these into a book.

2005-032-1-700_ Stand-Alone Drugs (Janos Fischer)

The project will study drugs having no structural and pharmacological analogues with the intention of providing a perspective on situations where it has not proven possible to improve an existing drug with an analogue-based approach. A preliminary short communication about this was sent to Chemistry International last July.

Only about 5 % of the Top 400 drugs belong to this category. A review article and a chapter in the book Analogue-based Drug Discovery II will be produced by the project group.

2005-042-1-300_ Working Party on Chemistry for Biology. (Robin Ganellin representative)

An interdivision feasibility study jointly with the Organic and Biomolecular Chemistry and the Physical and Biophysical Chemistry Divisions. Progress unknown.

2005-049-1-700_ Biological Context by Data Mining. (Michael Liebman)

To extend the usefulness and applicability of the glossaries, it would be worthwhile to explore methods for identifying the various contexts in which the terms appear in the scientific literature. In the ideal situation, this project can transcend the three Subcommittees of the Division to incorporate activities of each. No new information.

2005-050-1-700 Prototype Analysis of Molecular Biomarkers in Cancer. (Michael Liebman)

Molecular Biomarkers have become a major focus of disease management and drug development, particularly in oncology. This prototypic study aims to identify the existing biomarkers in breast cancer and classify them in terms of disease progression and also as to their clinical vs. research use. The project is underway. No new information.

2008-010-1-700 Glossary of Terms in Medicinal Chemistry Updated (Derek Buckle)

This project was approved in June with Derek Buckle as project leader and Robin Ganellin, Joerg Senn-Bilfinger, Paul Erhardt, Toshi Kobayashi, Tom Perun and John Proudfoot as task group members. Some 90 additional terms were collated and discussed and will be further explored

2008-013-1-700 Analogue-Based Drug Discovery (Janos Fisher)

The book "Analogue-based Drug Discovery" published in January 2006 by Wiley-VCH generated significant interest in the drug discovery and development community and the intention is to provide a second volume of equivalent quality. Janos has decided on an outline for the book, and identified authors and topics. Chapter outlines have been received from the authors and their full manuscripts are expected within the next few months.

New Projects under discussion:

To set up a global network to promote the study of new drugs for the treatment of neglected diseases.

Research and Training in Medicinal Chemistry in Latin America.

Prize: The IUPAC-Richter Prize in Medicinal Chemistry of US \$ 10,000, to be awarded 5 times over 10 years, has been established by a generous gift from Gedeon Richter Ltd, Budapest, Hungary. The Prize will recognize a prominent scientist for outstanding contributions in medicinal chemistry and drug discovery and was awarded for the first time in 2006. The Prize for 2008 was awarded to Jan Heeres (Janssen, retired) for his outstanding contributions to the invention of ketoconazole and the conazole class of antifungal agents. He has subsequently worked on various other projects, including Rilpivirine, an antiviral agent that is currently being assessed in Phase 3 clinical trials for the treatment of AIDS. The award was presented to him during a special awards session at the ACS 31st National Medicinal Chemistry Symposium on June 18th 2008, in Pittsburgh, where Jan received his plaque and cheque, and gave the IUPAC - Richter Award Lecture entitled: “Progress in the Development of Non-nucleoside Reverse Transcriptase Inhibitors: From TIBO to Rilpivirine”. He was joined by Professor Edward Arnold (Rutgers University) who lectured on “High-Resolution Structures of HIV-I RT / Rilpivirine complexes.” He repeated his lecture in the antiviral session of the XXth International Symposium on Medicinal Chemistry_ (Vienna) 2nd September and, again, at the 2nd Coast to Coast Medicinal and Synthetic Chemistry Symposium_ (Torquay, UK) in October 2008. Thus the prize has had excellent publicity. In each case we were helped financially by the Symposium organizers who paid the travel expenses for Heeres.

The Subcommittee shall soon be publicizing the third award of the prize, due for 2010.

b. Nomenclature, Properties and Units in Laboratory Medicine (NPU-LM)

Meetings:

SC-NPU-LM

Kemer-Antalya, Turkey 2008-04-10 – 04-11

Uppsala, Sweden 2008-10-23 – 10-25

Technical project meetings:

International vocabulary for nominal examinations in scientific communication :

Kemer-Antalya, Turkey 2008-04-12

Uppsala, Sweden 2008-10-22

Data base management transfer to IFCC headquarters (HDQ)

Kemer-Antalya, Turkey 2008-04-12

Silver Book revision

Kemer-Antalya, Turkey 2008-04-15

Paris, France 2008-11-17 – 11-19

IHTSDO teleconference

2008-04-17

Mapping of IFCC-IUPAC laboratory coding system to SNOMED CT

Securing and structural updating of information in the NPU coding system and its environment

Copenhagen, Denmark, 2008-09-27

SNOMED CT-NPU-LOINC negotiations (For IFCC, the official name abbreviation is C-NPU. For the SNOMED CT-NPU-LOINC negotiation, the official contract defines « NPU » as being the abbreviation for « NPU terminology ».)

Washington DC, USA, 2009-02-25 – 02-27

NPU terminology:

The NPU terminology is, as the « generic database » 2004-09-01 version, published on the net under the URL: <<http://dior.imt.liu.se/cnpu/>>. It is freely accessible at both the IFCC homepage (Scientific division) and IUPAC (Division of Chemistry and Human Health) homepage. An updated version is available in Danish (English version on request) at <http://www.labterm.dk>. Negotiations with IHTSDO (International Health Terminology Standards Development Organisation), which manages SNOMED CT, and with the Regenstrief Institute, which manages LOINC, have moved a step forward by initiating a 6 months period of trial to map NPU, LOINC and SNOMED CT terminologies according to a common scheme.

Completed projects:

VIM3 was released on free access on the BIPM website in June 2008. According to JCGM agreements, the two IFCC representatives to WG2 VIM provided an IFCC front page for the publication on the IFCC website.

Ongoing projects:

1. Properties and units for function examinations (IUPAC: 2001-067-1-700). Progressing.
2. Properties and units for urinary calculi (IUPAC: 2001-070-1-700). Progressing.
3. Internationally agreed terminology for observations in scientific communication. (IUPAC 2004-023-1-700) Chair : Françoise Pontet. End date and budget extended. Renamed « International vocabulary for nominal examinations in scientific communication ». List of terms stated and spread among TGM.
4. Mapping of IFCC-IUPAC laboratory coding system to SNOMED CT (IUPAC 2006-008-1-700) Chair : Ulla Magdal. Progressing along with cooperation with IHTSDO (see above).
5. Securing and structural updating of information in the NPU coding system and its environment (IUPAC 2006-012-1-700) Chair : Ulla Magdal. User's guide in Danish available online at <http://www.labterm.dk>. English version to be available within a few months. A logical model (information model) for a new database has been suggested. The model was implemented in the Danish LabTerm database in 2008. This has enabled explicit filing in the Danish database of formerly implicit or silent information, awaiting migration to the IFCC database by the end of 2009.
6. Recent advances in Nomenclature, Properties and Units : strategy for promoting SC-NPU achievements (2006-048-1-700) Chair : Françoise Pontet. A chart about C-SC-NPU was provided to Howard Morris for IHTSDO collaboration and for a presentation to the Australasian Association of Clinical Biochemists. This chart can be further used for promoting C-SC-NPU activities. A poster abstract for the ICCF-Fortaleza Congress was rejected, so the project milestones have been changed.
7. HbA1c : IFCC recommendations further promoted (see publication below).
8. Silver Book (Compendium of Terminology and Nomenclature of Properties in Clinical Laboratory Sciences) revision (joint IFCC CPD project + IUPAC 2008-033-3-700) Co-Chairs : Françoise Pontet, Georges Féraud. Project started, structured, work scheme set up, calendar defined.
9. Translation of NPU database elements and properties into French (F. Pontet). A first version has been sent to the SFBC (French Society of Clinical Biology) at the end of November 2008.
10. Demonstration of NPU – SNOMED CT mapping/harmonization of terms used in Clinical Laboratory Sciences (IUPAC:2009-05-1-700) Chair : Urban Forsum.

Future projects:

The SC-NPU is currently working on a number of proposals to become projects during 2009.

Representation of SC members in other committees:

IUPAC Division VII Subcommittee on elections : Urban Forsum, Xavier Fuentes-Arderiu

IFCC Scientific Division : Françoise Pontet

JCGM (WG1-GUM), René Dybkær (formerly IFCC, now IUPAC).

JCGM (WG2-VIM), IFCC : René Dybkær (formerly IFCC, now IUPAC), Françoise Pontet

CCQM, IFCC : René Dybkær

CEN TC 251 wg2 : Daniel Karlsson

Publications:

1. Nordin G, Bruunshuus I, Dybkaer R, Ihalainen J, Magdal U, Olesen H, IUPAC : 41 Kongress, Turin, Italien, augusti 2007. *Klinisk Biokemi i Norden* 2008; 20(2) :24-25.
2. Dybkaer R. Description of chemical systems by their properties. *Pure Appl Chem* 2008;80(8):1719-1723.
3. Forsum U, Gryfelt G, Klinteberg B, Nilsson L-Å, Nordin G, Persson B. Svenska koder för laboriemedicin enligt C-NPU kodverkets principer 2008. Ed EQUALIS AB & Swedish Societies for medical microbiology, clinical immunology, clinical chemistry and transfusion medicine.
4. John WG, Nordin G, Panteghini M. What's in a name? Standardisation of HbA1c: a response. *Clin Chem Lab Med* 2008;46(9) :1326-1327.
5. Queraltó Compañó JM, Bosch Ferrer MÁ, Bedini Chesa JL, Raventós Monjo J, Fuentes-Arderiu X. Computers in Clinical Laboratories. *Chemistry International* 2008;30(5):5-8.
6. Féraud G. Revision of the Silver Book. *Chem Int* 2008;30(6):15.

c. Toxicology and Risk Assessment (TRA)

Projects completed or in progress - 2008/2009:

1999-047-1-700 - Immunochemistry of metal sensitization

Following the publication of the three papers already resulting from this project, two further papers entitled 'Lymphocyte Subpopulations in Human Exposure to Metals' and 'Immunological Effects of Mercury' have been published in PAC as technical reports.

2004-045-1-711 - Training of school children on pesticides and health - "Toxiclaro"

The Task Group meetings resulted in a prototype computer animation package developed at the Universiti Sains Malaysia. The material has been evaluated in accordance with the theory of learning and will shortly be available as a CD. Final publication of the material is expected very shortly. An amended version of the Toxiclaro multimedia package has now been developed incorporating the IUPAC logo and this can be found at <https://webmail.staff.otago.ac.nz/owa/redir.aspx?C=45941ce401c144c3851b59edda487a33&URL=http%3a%2f%2fwww.prn2.usm.my%2ftoxicology2009>.

2005-047-1-700 - Glossary of Terms Used in Ecotoxicology

The final document following review and revision has been accepted for publication by Pure and Applied Chemistry and will be published in 2009.

2006-020-1-700 - Explanatory dictionary - part 2

The Working Group has submitted the final document for publication in Pure and Applied Chemistry and it is being prepared for the final part of the PAC review process.

Book "Concepts in Toxicology"

The two papers which comprise the "Explanatory Dictionary" have been combined and the contents re-organized using concept diagrams to produce a book by Drs. Duffus, Templeton and Nordberg which emphasizes the relationships between concepts and how concepts can be combined to generate higher order concepts. This process may be seen as analogous to the combination of elements to produce compounds and compounds to produce cells etc. The book is currently being prepared for publication by the Royal Society of Chemistry and will be published this year.

2007-053-1-700 - Glossary of Terms Used In Immunotoxicology

The objective of this project is to prepare a glossary defining terms in the specialized field of immunotoxicology, to supplement the recently published Glossary of Terms Used in Toxicology (2nd ed.), and aid chemists in the interpretation of the output of 1999-047-1-700, Immunochemistry of Metals. A meeting of the Working Group was held in Tübingen, hosted by Professor Schwenck. This was followed up by collaboration by email and a first draft of the glossary has been prepared.

New Projects:

Emphasis has been placed on completing current projects and further projects have been delayed until these are finished satisfactorily. Once the "Glossary of Terms Used in Ecotoxicology" is published, there are terms that justify a further explanatory dictionary. With the subsequent completion of the "Glossary of Terms Used in Immunotoxicology", there is a case for amalgamating the toxicology glossaries, with accompanying revision and updating.

Other Activities:

The results from the Biomonitoring Equivalents Workshop, organized by Summit Toxicology and sponsored by US EPA, Health Canada, ACC, the Soap & Detergent Association, the American Petroleum Institute, and two pesticide industry groups, CropLife America and Responsible Industry for a Sound Environment, which Monica Nordberg attended and to which John Duffus contributed have been published in "Regulatory Toxicology and Pharmacology".

For further information see the BE website,

http://www.biomonitoringequivalents.net/html/additional_resources_.html.

Our involvement in the Strategic Approach to International Chemicals Management (SAICM) is lead by John Duffus. He is collaborating with Colin Humphris and Mark Cesa of COCI, and Stanley Langer of the RSC in an attempt to revive IUPAC collaboration with WHO and IPCS, through their current initiative SAICM. SAICM seeks to establish a harmonized global approach to management and minimization of risk associated with production, use and disposal of chemicals. It is likely that IUPAC will become a recognized nongovernmental organization (NGO) for SAICM and join the Society of Environmental Toxicology and Chemistry (SETAC) in setting up an advisory body, perhaps with the involvement of IUTOX.

The WHO/IPCS Harmonization Project draft "Framework for Risk Assessment of Combined Exposures to Multiple Chemicals" is now available for public and peer review comment. The document is accompanied by two case studies which illustrate the application of the framework. The first case study (case study A) is on polybrominated diphenyl ethers (PBDEs), and the second (case study B) is on carbamates.

d. Public Relations and Elections (PRE)**Elections:**

The election process for the 2010-2012 term for Titular Members went well, although there was some question about the long time before the new term began. The Nominating Committee consisted of two current Titular Members, and three others who have been involved with IUPAC. Thus, candidates were selected who had participated in

IUPAC projects or had expressed interest in IUPAC activities. The nominees represented a diverse geographical, gender and scientific background. Two of the new Titular Members elected had been proposed as National Representatives from the NAOs of Russia and Japan.

Public Relations:

Discussions of Division VII activities have been held with other scientific organizations such as the American Chemical Society and the European Federation for Medicinal Chemistry. Such discussion led to an agreement for joint funding of a medicinal chemistry glossary between Division VII and the ACS Division of Medicinal Chemistry. The ACS Division has already agreed to publish the glossary in its Annual Reports in Medicinal Chemistry when completed.

Part IV - Projects and Publications

a. List of current projects

1999-047-1-700 Immunochemistry of Metal Sensitization (Doug Templeton)

2000-009-1-700 Glossary of Drug Metabolism Terms (Paul Erhardt)

2000-010-1-700_ Project on Human Drug Metabolism Database (Paul Erhardt)

2001-048-2-700 Research and Training in Medicinal Chemistry in the Indian Subcontinent (Mukund Chorghade)

2001-049-2-700 Glossary of Terms in Pharmaceutical Technology (Eli Breuer)

2001-049-2-700_ Glossary of Terms in Pharmaceutical Process Chemistry (Mukund Chorghade)

2001-050-2-700 Natural Products with Medicinal and Nutritional Value (Mukund Chorghade)

2001-067-1-700 Properties and Units for Function Examinations (Antonin Jabor)

2001-070-1-700 Properties and Units for Urinary Calculi (Antonin Jabor)

2002-001-1-700 Compendium of Glossaries (Robin Ganellin)

2003-044-1-700_ Glossary of Combinatorial Chemistry Terms (A. Ganesan)

2004-019-3-700_ Glossary of Terms for Biomolecular Screening (John Proudfoot)

- 2004-023-1-700 Internationally Agreed Terminology for Observations in Scientific Communication (Françoise Pontet)
- 2004-028-1-700_ Practical Studies for Medicinal Chemistry Students (Antonio Monge)
- 2004-045-1-711 Training of School Children on Pesticides and Health - "Toxiclaro" (Wayne Temple)
- 2005-031-2-700_ Latin American Plants as Sources for Nutraceuticals (Antonio Monge)
- 2005-032-1-700 Stand-Alone Drugs (Janos Fischer)
- 2005-042-1-300_ Working Party on Chemistry for Biology (Robin Ganellin representative)
- 2005-047-1-700 Glossary of Terms Used in Ecotoxicology (Monica Nordberg)
- 2005-049-1-700 Biological Context by Data Mining (Michael Liebman)
- 2005-050-1-700 Prototype Analysis of Molecular Biomarkers in Cancer (Michael Liebman)
- 2006-008-1-700 Mapping of IFCC-IUPAC Laboratory Coding System to SNOMED CT (Ulla Magdal)
- 2006-012-1-700 Securing and Structural Updating of Information in the NPU Coding System and its Environment (Ulla Magdal)
- 2006-020-1-700 Explanatory Dictionary of Terms in Toxicology - Part 2 (Monica Nordberg)
- 2006-048-1-700 Recent Advances in Nomenclature, Properties and Units : strategy for promoting SC-NPU achievements (Françoise Pontet)
- 2007-053-1-700 Glossary of Terms Used In Immunotoxicology (Doug Templeton)
- 2008-010-1-700 Glossary of Terms in Medicinal Chemistry Updated (Derek Buckle)
- 2008-013-1-700 Analogue-Based Drug Discovery (Janos Fisher)
- 2008-033-3-700 Silver Book (Compendium of Terminology and Nomenclature of Properties in Clinical Laboratory Sciences) revision (Joint project with IFCC) (Françoise Pontet, Georges Féraud)
- 2009-005-1-700 Demonstration of NPU SNOMED CT. Mapping harmonization of terms used in clinical laboratory sciences (Urban Forsum)

Translation of NPU database elements and properties into French (Françoise Pontet). Updated, corrected and reviewed before posting on the Société Française de Biologie Clinique (SFBC) website.

Book “Concepts in Toxicology” (John Duffus)

HbA1c: IFCC recommendations further promoted (W.G. John).

b. Publications 2007-2009

Publications in PAC:

- Duffus, J.H., Nordberg, M. & Templeton, D.M., Glossary of terms used in toxicology, 2nd edition, Pure Appl. Chem. 79: 1153-1344 (2007).

- Nordberg, M., Duffus, J.H. & Templeton, D.M., Explanatory dictionary of key terms in toxicology, Pure Appl. Chem. 79: 1583-1633 (2007).

- Duffus J. , Bruunshuus I., Cornelis R., Dybkær R., Nordberg M., & Kuelpmann W., Properties and Units in the Clinical Laboratory Sciences, Part XX. Properties and Units in Clinical and environmental human toxicology, Pure Appl. Chem. 79: 87-152 (2007).

- Dybkaer R. Description of chemical systems by their properties, Pure Appl. Chem. 80:1719-1723 (2008).

- Schwenk, M., Klein, R., & Templeton, D.M., Lymphocyte subpopulations in human exposures to metals, Pure Appl. Chem. 80: 1349-1364 (2008).

- Schwenk, M., Klein, R., & Templeton, D.M., Immunological effects of mercury, Pure Appl. Chem. 81: 153-167 (2009).

- Nordbeg, M., Templeton, D.M., Andersen, O., & Duffus, J.H., Glossary of Terms Used in Ecotoxicology, Pure Appl. Chem. 81: 829-970 (2009).

Others:

- Duffus J, Bruunshuus I, Cornelis R, Dybkær R, Nordberg M, Kuelpmann W., Properties and Units in the Clinical Laboratory Sciences, Part XX. Properties and Units in Clinical and environmental human toxicology. eJIFCC 18(2) (2007).

- Joint Committee on Nomenclature, Properties and Units (C-NPU) of the IFCC and IUPAC. Soares de Araujo, Fuentes-Arderiu X, Nordin G, Bruunshuus I, Ihalainen J, Karlsson D, Forsum U, Dybkaer R, Magdal U, Schadow G, Kuelpmann W, Pontet F.,

Recent advances in Nomenclature, properties and units. Proceedings of the 17th IFCC-FESCC European Congress of Clinical Chemistry and Laboratory Medicine; June 3-7 (2007); Amsterdam, The Netherlands, and Clin. Chem. Lab. Med. 45 Suppl. S447 (2007).

- Dybkaer R. Description of chemical systems by their properties. Proceedings of the 41st IUPAC World Chemistry Congress; August 5-11; Turin, Italy. Session 2: Chemistry protecting health, 41 (2007).

- Magdal U. Nationwide use of a terminology for clinical laboratory communication. Proceedings of the 41st IUPAC World Chemistry Congress; August 5-11; Turin, Italy. Session 2 : Chemistry protecting health, 43 (2007).

- Magdal U. IFCC-IUPAC Subcommittee on Nomenclature, Properties and Units (SC-NPU). The NPU terminology – adjusting to success. Proceedings of the 41st IUPAC World Chemistry Congress; August 5-11; Turin, Italy. Session 2 : Chemistry protecting health, 49 (2007).

- Pontet F, Nordin G, Magdal U, Bruunshuus I, Dybkaer R, Forsum U, Fuentes-Arderiu X, Ihalainen J, Karlsson D, Kuelpmann W, Schadow G, Soares de Araujo P. Division VII Subcommittee Nomenclature, Properties and Units (SC-NPU) activities. Proceedings of the 41st IUPAC World Chemistry Congress; 2007 August 5-11; Turin, Italy. Session 2 : Chemistry protecting health, 51 (2007).

- Nordin G, Bruunshuus I, Dybkaer R, Ihalainen J, Magdal U, Olesen H, IUPAC : 41 Kongress, Turin, Italien, augusti 2007. Klinisk Biokemi. i Norden 20:24-25 (2008).

- Duffus, J.H., Templeton, D.M. & Nordberg, M., Concepts in Toxicology, Royal Society of Chemistry (In Press).

International Union of Pure and Applied Chemistry
Division VIII
Chemical Nomenclature and Structure Representation
Report to IUPAC Council August 2009

1. Highlights

A Publications

Since the last report to Council the Division has published a number of reports and recommendations:

(i) Representation of configuration in coordination polyhedra and the extension of current methodology to coordination numbers greater than six (IUPAC Technical Report), R. M. Hartshorn, E. Hey-Hawkins, R. Kalio, and G. Jeffery Leigh, *Pure Appl. Chem.* **79**(10) 1779-1799 (2007).

(ii) Structure-based nomenclature for cyclic organic macromolecules (IUPAC Recommendations 2008), W. Mormann and K.-H. Hellwich, *Pure Appl. Chem.* **80**(2) 201-232 (2008) [joint with Division IV].

(iii) Graphical representation standards for chemical structure diagrams (IUPAC Recommendations 2008), J. Brecher, *Pure Appl. Chem.* **80**(2) 277-410 (2008). This is part two of the project, where part one was Graphic representation of stereochemical configuration (IUPAC Recommendations 2006), *Pure Appl. Chem.*, **78**(10), 1897-1970 (2006) [now also published in Slovenian].

(iv) Corrections to *Nomenclature of Inorganic Chemistry: IUPAC Recommendations 2005*, Royal Society of Chemistry, 2005. Edited by N. G. Connelly and T. Damhus (with R. M. Hartshorn and A T Hutton) [ISBN 978-0-85404-438-8]. The small number of errors which have been identified for the "Red Book" have been published electronically at <http://www.chem.qmul.ac.uk/iupac/bibliog/RBcorrect.html>. This 2005 edition of the Red Book has now been translated into Hungarian and Spanish.

(v) Nomenclature for rotaxanes and pseudorotaxanes (IUPAC Recommendations 2008), *Pure Appl. Chem.*, **80**(9), 2041-2068 (2008) A. Yerin, E. S. Wilks, G. P. Moss and A. Harada. This is part one of recommendations on rotaxanes and pseudorotaxanes. These structures have two (or more) compounds held together by one being threaded through a cyclic portion of the other. Part two will deal with polymeric rotaxanes and pseudorotaxanes.

(vi) *Compendium of Polymer Terminology and Nomenclature, IUPAC recommendations 2008*, edited by R.G. Jones, J. Kahovec, R. Stepto, E.S. Wilks, M. Hess, T. Kitayama and W.V. Metanowski, RSC Publishing, 2009 [ISBN 978-0-85404-491-7] This is a revision of the 1991 “Purple Book”. Although prepared by Division IV about a third of the book covers macromolecular nomenclature.

B InChI

The final version 1.02 of the InChI algorithm is now available (see <http://www.iupac.org/inchi/index.html>). A growing number of databases, software programs and journals are incorporating InChI into their work.

InChIKey, which differs from a full InChI in that it pre-sets all the variables (fixed or movable hydrogens, etc.), creates a shorter 27 character string, which allows for easy searching via Google and other search engines. Unlike the full InChI the InChIKey cannot be converted back into a structural diagram. It is possible to obtain a structure from an InChIKey using a resolver such as the one recently released by ChemSpider: <http://inchi.chemspider.com/> (now acquired by RSC). For more information about InChIKey see: http://www.inchi.info/inchikey_overview_en.html

Work continues on extensions to InChI. Topics that are under consideration or being worked on include Markush structures, polymers and reaction identifiers. An InChI Trust has been set up to fund and supervise further work on this project.

C Projects nearing completion

- (i) Revision of "*Principles of Chemical Nomenclature 1998*" This is a book designed for students and undergraduates.
- (ii) Preferred names in the nomenclature of organic compounds. Work continues on the revision of the provisional text. Several chapters are now being reviewed by the Division VII discussion forum and the revision should be completed in the very near future.
- (iii) Recommendations for nomenclature and databases for biochemical thermodynamics. This is a revision of a JCBN document Recommendations for nomenclature and tables in biochemical thermodynamics, Recommendation

1994 *Pure Appl. Chem.* 1994, **66**, 1641-1666, *Eur. J. Biochem.*, 1996, **240**, 1-14; **242**, 433

2. Report on the work of the Division for the IUPAC Strategic Plan

The Division continues to document and recommend unambiguous nomenclature for chemical compounds. As well as extensions to earlier published recommendations it is concerned with developing areas where there are no IUPAC recommendations. In the current biennium the second edition of a *Compendium of Polymer Terminology and Nomenclature, IUPAC recommendations 2008* (The Purple Book) is an important landmark in this work.

Some users of chemical name need **THE** IUPAC name. This is being addressed by the revision and expansion of the *Nomenclature of Organic Chemistry* (The Blue Book). In addition to documenting the various ways of naming organic compounds it also now recommends a preferred IUPAC name. Related projects are in progress to provide preferred IUPAC names for inorganic and polymeric compounds.

In addition to unambiguous names it is equally important that structural diagrams are also unambiguous. This has been addressed by two projects that have been now been published [see 1 A (iii) above].

The promotion of IUPAC nomenclature has been facilitated by providing most recommendations on the web.

The revision of the book *Principles of Chemical Nomenclature 1998* is designed to update the recommendations to cover changes since over the last decade. The target audience is students and undergraduates who only require the basics of chemical nomenclature.

3. Other substantive information

The off-year meeting of the Division was held in Büdingen, Germany. It was attended by 11 TMs, 5 AMs and 3 observers. Minutes will be posted on the web after they are approved in Glasgow.

The Division continues to work closely with the IUBMB on enzyme nomenclature and natural product nomenclature. The IUPAC-IUBMB Joint

Commission on Biochemical Nomenclature works jointly with the Nomenclature Committee of the IUBMB.

4. Division Projects and Publications

1999-051-1-800 Nomenclature for Chemically Modified Polymer Molecules

2001-043-1-800 Preferred names in the nomenclature of organic compounds.

See 1 C (ii) above.

2001-081-1-800 Terminology and structure-based nomenclature of dendritic and hyperbranched polymers. This project is being split into two documents separating the dendritic polymers from the hyperbranched polymers.

2001-082-1-800 Structure-based nomenclature for cyclic organic macromolecules (IUPAC Recommendations 2008), W. Mormann and K.-H. Hellwich, *Pure Appl. Chem.* **80**(2) 201-232 (2008)

2002-014-1-400 Glossary of class names of polymers based on their chemical structure and molecular architecture

2002-048-1-400 *Compendium of Polymer Terminology and Nomenclature, IUPAC recommendations 2008*, edited by R.G. Jones, J. Kahovec, R. Stepto, E.S. Wilks, M. Hess, T. Kitayama and W.V. Metanomski, RSC Publishing, 2009 [ISBN 978-0-85404-491-7]

2002-007-1-800 Nomenclature for rotaxanes and pseudorotaxanes (IUPAC Recommendations 2008), *Pure Appl. Chem.*, **80**(9), 2041-2068 (2008) A. Yerin, E. S. Wilks, G. P. Moss and A. Harada.

2003-025-1-800 Representation of configuration in coordination polyhedra and the extension of current methodology to coordination numbers greater than six (IUPAC Technical Report), R. M. Hartshorn, E. Hey-Hawkins, R. Kalio, and G. Jeffery Leigh, *Pure Appl. Chem.* **79**(10) 1779-1799 (2007)

2003-042-1-800 Source-based nomenclature of single-strand organic polymers

2003-045-3-800 Graphical representation standards for chemical structure diagrams (IUPAC Recommendations 2008), J. Brecher, *Pure Appl. Chem.* **80**(2) 277-410 (2008).

2004-024-1-800 Nomenclature of cyclic peptides

2006-019-1-800 Nomenclature of phosphorus-containing compounds of biochemical importance

2006-029-1-800 Revision of "*Principles of Chemical Nomenclature 1998*" See

1 C (i) above

2006-038-1-800 Preferred IUPAC Names (PINs) for Inorganic Compounds

2006-023-3-100 Recommendations for nomenclature and databases for biochemical thermodynamics. See 1 C (iii) above

2007-009-1-800: Nomenclature for Rotaxane Polymers. See 1 A (v) above.

2008-020-1-400: Revision of "IUPAC Recommendations on Macromolecular Nomenclature – Guide for Authors of Papers and Reports in Polymer Science and Technology" (<http://www.iupac.org/reports/IV/guide-for-authors.pdf>)

2008-015-1-400: Preferred names for polymers.

2008-032-1-400: Basic guidelines to polymer nomenclature

2008-035-1-800: IUPAC International Chemical Identifier (InChI) Symposium held in Salt Lake City at the ACS meeting.

2008-033-1-800: InChI and InChIKey: further promotion

2008-034-1-800: IUPAC International Chemical Identifier (InChI): Further Development

Gerard P. Moss
President Division VIII

IUPAC Committee on Printed and Electronic Publications (CPEP)

Report to Council for 2007-2008

I. Highlights

The IUPAC Website (<http://www.iupac.org/>) has been extensively re-organised using XML technology, and is now running on virtual servers based upon the physical server platform graciously provided to IUPAC by FIZ Chemie Berlin, through René Deplanque. The online archive of *Pure and Applied Chemistry* is now complete, involving the scanning and re-touching of almost 80 000 pages spanning 49 years (1960-2008). Its ready availability already significantly enhances the profile of the journal. Starting from March 2009, PAC published articles online ahead of print. These articles are available on the ASAP (As Soon As Publishable) Articles page and also in a form of an RSS feed. The online Gold Book has now become an important reference resource, both to IUPAC and to chemists in general, since the information is readily accessible and also can be linked directly from published articles.

II. Overall Report

b) *IUPAC provides research tools*

Pure and Applied Chemistry is an increasingly significant literature resource with its complete online archive and extensive search tools. The online version of the Gold Book is an important resource for the chemical community in providing ready access to definitive information on chemical terminology.

d) *IUPAC fosters communication*

The enhanced Website and the provision of ready access to *PAC*, *CI* and the Gold Book enhance the image of IUPAC.

III. Other Information

CPEP met in Torino in 2006 and in Prague on 12-13 July, 2007 (at the Institute of Organic Chemistry and Biochemistry). On each occasion, the publication parameters (content, schedules, self-publication, prices and currency) of the IUPAC publications, *Chemistry International* and *Pure and Applied Chemistry*, and of books, were considered. Publication of the periodicals has been eased by the process of electronic submission and control through Manuscript Central. Careful management of the contents of *PAC* by the Scientific Editor, Prof. James Bull, has seen an enhancement of the appropriateness of material submitted, and of the speed of publication. The timeliness and impact factor of *PAC* has continued to increase, much due to the diligence of the Scientific Editor.

CPEP has proposed that the IUPAC Website be set up to serve its two principal user communities: a) people who seek information about IUPAC as an organization; b) people who use the IUPAC site as a reliable source of information in chemistry-related fields. CPEP also resolved in Prague as follows: "It is recommended that consideration be given

to funding the maintenance of the IUPAC website on a continuing basis through the Secretariat. Such maintenance activities do not fit readily within a project system, which requires regular initiation, assessment, and outcomes. Nevertheless, these activities should be subject to regular review by CPEP of their efficiency and effectiveness."

Issues for the Consideration of Council

New Standing Orders for CPEP provide that the Secretary serves under the same conditions as the Chair (with a maximum term of 10 years). The Scientific Editor now has an *ex officio* position on CPEP, but with the rights of a Titular Member. This position is funded from the CPEP Budget, but no provision was made for an increase in budget (in spite of requests), thus effectively reducing the maximum number of other Titular Members to seven.

CPEP regards the online implementation of the Gold Book as being the first in a line of continuous development of the other Colour Books. However, while the Divisions proceed with updating of their various Colour Books, there does not seem to be a general commitment towards online publication. This is an issue which requires early resolution so that consistent policy can be developed.

The important contributions to IUPAC, via CPEP, of the Titular Members and their colleagues, from both Prague and Berlin deserve special mention and thanks.

IV. Tabular Material

CPEP is responsible for a number of projects, as listed below, and for the publications of IUPAC.

Web-based

Project No. 2007-016-1-024: [Enhancement of the electronic version of the IUPAC Compendium of Chemical Terminology](#) Chair: Bedrich Kosata

Project No. 2007-014-1-024: [Software framework for transformation of IUPAC Color Books to XML](#) Chair: Bohumir Valter.

Project No. 2002-022-1-024: [Standard XML data dictionaries for chemistry](#) Chair: Steve Stein – completed 2007.

Database

Project No. 2002-055-3-024: [XML-based IUPAC Standard for Experimental and Critically Evaluated Thermodynamic Property Data Storage and Capture](#) (ThermoML) Chair: M. Frenkel – completed 2006.

Subcommittee on Electronic Data Standards

Project No. 1999-046-2-024: [Data exchange standard for electron paramagnetic resonance data types \(incl. ESR EMR etc.\)](#) Chair: R. J. Lancashire – completed 2006

Project No. 024/1/98: [Spectroscopic data standard for multi-dimensional NMR data sets](#)

Project No. 2002-020-2-024: [Data exchange standard for near infrared spectra and general spectroscopic calibration data types](#) Chair: G. Downey – in progress.

Leslie Glasser, Chair, CPEP, May, 2009

IUPAC Committee on Chemical Research Applied to World Needs (CHEMRAWN)

Report for 2008-2009 to the Bureau and Council

Summary

The CHEMRAWN Committee finds itself in sort of a transition state this biennium. At the start of the biennium the flow of new ideas was minimal, and the committee's main task has therefore been to generate new ideas that, eventually, will generate new CHEMRAWN conferences in the future. One result of this process is CHEMRAWN XIII: Symposium on Science, Ethics and Development which will be run as an integral part of the 42nd IUPAC Congress in Glasgow, but a number of other ideas are currently under development, some of which will hopefully become the platform for future conferences.

In the process of generating new ideas for future relevant activities it became quite clear that the process would have more productive if more proposals had been on the table. In order to achieve this, the committee wants to invite every NAO to appoint a National Contact to CHEMRAWN for the next biennium.

The CHEMRAWN Committee as such has not been involved in IUPAC projects in the past, but this biennium this practice has changed to some extent. An example is the committees' involvement in the project "IUPAC Support to SAICM Implementation", which basically is a result of the discussion at the World Chemistry Leadership Meeting at the IUPAC General Assembly in Turin in 2007.

I. Work and achievements in the current biennium

Since the committee was established 1973, the main activity of CHEMRAWN has been the organization of the CHEMRAWN series of conferences. Since the first conference was held in 1978, 15 conferences and a number of related workshops have been held addressing important aspects of the global theme: **CHEMical Research Applied to World Needs**. The last conference was CHEMRAWN XII: Chemistry, Sustainable Agriculture and Human Well-Being in Sub-Saharan Africa, which was held in Stellenbosch, South Africa December 3-6, 2007.

At the start of this biennium no project was really under development, and the transfer of ideas was minimal. For the committee the main task was therefore to try to revive the idea generation. During the off-year meeting, held in Puerto Rico during the FLAQ meeting in August 2008, the discussion about future projects was the most important item on the agenda. A large number of ideas were discussed and some were judged to have a potential to lead to a CHEMRAWN conference in the future. These ideas are now being explored by committee members and associated scientists. In alphabetical order they are Biofuel, Carbon footprints, Chemistry challenges in Latin America, Chemistry and materials for clean energy, Herbal medicines, Nanomaterials, Solar energy, Vegetable production, and Water. The project ideas are under development and a progress report will be available in Glasgow.

Special attention was paid to a request to organize an ethics-related symposium as part of the programme for the IUPAC Congress in Glasgow. After a thorough discussion it was decided to go ahead with the idea and organize a symposium entitled "Science, ethics, and Development". The

symposium will be run for two half days (Aug 3 and Aug 4), and it was agreed to call it CHEMRAWN XIII in spite of the fact that the symposium will be lacking some of the characteristic features of a CHEMRAWN conference.

During the World Chemistry Leadership Meeting at the IUPAC GA in Turin in 2007 the SAICM initiative (“Strategic Approach to International Chemicals Management”) was presented and drew the meeting’s attention. A lot of the themes discussed by and to be implemented by SAICM are highly relevant for CHEMRAWN (as well as COCI), and when the idea was put forward that CHEMRAWN should become involved in the preparation and execution of the second session of International Conference on Chemicals Management (ICCM2) meeting organized by SAICM and UNEP, CHEMRAWN participation was deemed desirable. The Committee chair therefore joined the task group for the project “IUPAC Support to SAICM Implementation” (chaired by C. Humphris). A team from IUPAC, Nicole Moreau, Leiv K. Sydnes, John Duffus, Fabian Benzo Moreira, and Mark Cesa, collaborated with the presidents and staff of the International Union of Toxicology (IUTOX) and the Society for Environmental Toxicology and Chemistry (SETAC) to present a proposal to the International Conference on Chemicals Management (ICCM2) in Geneva in May 2009. This proposal was to organize and hold a science meeting on one or more emerging issues related to the sound management of chemicals worldwide, with a particular emphasis on the developing world. The results of this meeting would hopefully be used by the delegations working with SAICM to formulate policy for chemicals management. The proposal was met with some support, but no firm decision was made. Further contact and collaboration with SAICM is now being discussed, and an appropriate forum for such a science meeting is being considered for 2011.

Several Future Actions Committees from previous CHEMRAWN meetings are still engaged in good work, but most of these activities are independent of the Committee and are not reported here. The Committee feels that for the future it is an idea to strengthen the contact because new projects are likely to develop from ongoing activities. A proof of this is the result of a discussion involving the CHEMRAWN Committee, the Organic and Biomolecular Chemistry Division, and the Future Actions Committee from CHEMRAWN VII, which has resulted in the establishment of the CHEMRAWN VII Prize for Atmospheric and Green Chemistry. The prize of USD 5000 will be awarded to a young scientist (under age 45) from a developing country who is contributing to the field of green chemistry through atmospheric chemistry research. The first award will be given at the IUPAC Conference on Green Chemistry in 2010. It will be awarded biennially at the same conference. The award will be administered by the Organic and Biomolecular Chemistry Division.

The Selection Committee will consist of the president of the division (who will serve as chair), the chair of the Subcommittee on Green Chemistry, and the chair of CHEMRAWN

III. Support for the Six IUPAC Goals

The CHEMRAWN committee is aiming at 1) identifying human needs amenable to solution through chemistry with particular attention to those areas of global or multinational interest, and 2) serving as an international body and forum for dissemination of chemical knowledge deemed useful for the improvement of man and his environment. The committee's foundation and philosophy is therefore to use frontier knowledge in the chemical sciences to achieve sustainable development, particularly in developing countries, through scientific discussions involving groups of properly educated specialists. The very nature of the committee's work is therefore closely linked to the six goals in the Union's current strategic plan. Some relevant comments follow.

Address global issues

Each CHEMRAWN conference focuses on a major issue of global concern, and all the committee's activities are therefore really addressing global issues. That is also the case with the project ideas that are currently under development.

Advance research through scientific discussion

This is particularly relevant when the findings and recommendations arising from each conference are going to be implemented. Such discussions constitute a very important part of both the CHEMRAWN conferences and the work carried out by the Future Actions Committees.

Foster communication among chemists and organizations with special emphasis on needs in developing countries

Most CHEMRAWN conferences have emphasized issues of major importance to the developing world, most recently through the CHEMRAWN XII workshops on soil fertility and food supplies in Africa. This was also a main priority during the SAICM meeting in Geneva where CHEMRAWN was engaged through a joint project with COCI.

Increase the diversity in IUPAC bodies

The CHEMRAWN Committee works continually to include underrepresented minorities in its membership and also to organize its conferences with diverse partners worldwide. This has a high priority in the committee as plans are being discussed for future conferences. In order to improve

our standing in this regard the committee will write and ask each NAO to nominate one national contact to the CHEMRAWN Committee.

IV. Other Substantive Issues.

1. The Committee continues to be engaged in efforts to

- * Increase the impact of conferences, workshops and studies through practical recommendations by the Future Actions Committee;
- * Formulate activities that complement the organization of traditional CHEMRAWN conferences, including fostering scientific exchanges and small workshops, carrying out studies, and drafting position papers;
- * Reach out to cooperate with other IUPAC Committees and Divisions as well as with international organizations such as the International Council for Science (ICSU), UNESCO and SAICM;
- * Make IUPAC and CHEMRAWN more visible at the international scenes where chemical issues are being discussed, e.g. within SAICM where IUPAC was very little known when ICCM2 started, but not when it finished.

2. The Committee wants to

- * Establish closer contact with the members of the Union by setting up a network of national contacts through the NAOs;
- * Urge the Committee members to address a particular issue with a conference or workshop where there is broad interest throughout the chemical community;
- * Encourage members of the chemical community to become involved in CHEMRAWN conference generation and Future Actions Committees to secure a steady flow of new ideas to be dealt with in the future;
- * Run a CHEMRAWN conference in a country in transition as part of the International Year of Chemistry in 2011.

V. Tabular material

Membership

The CHEMRAWN Committee has the following membership in the current biennium:

| | |
|----------------------|--|
| Committee chair: | Leiv K. Sydnes, Norway |
| Committee Secretary: | Stanley S. Langer, UK |
| The titular members: | Richard A. Durst, USA Kew-Ho Lee, Korea |

Jean-Marc Paris, France

Toshio Sasaki, Japan

Ayhan Ulubelen, Turkey

Gary van Loon, Canada

The associate members: Nikolai Z. Lyakhov, Russia
 Venelin G. Marinov, Bulgaria
 M. Anwar Panezai, Pakistan
 Carlos Tollinche, Puerto Rico

Ex Officio (The treasurer): John Corish, Ireland

Recent CHEMRAWN-related Publications

- (1) J. M. Malin, "Greenhouse Gases: Mitigation and Utilization", *Chemistry International*, **2008**, 30, (1); (www.iupac.org/publications/ci/2008/3001/cc3_080707.html)
- (2) J. M. Malin, "Greenhouse Gases: Mitigation and Utilization. Part II: Sequestration and Mitigation", *Chemistry International*, **2008**, 30, (2); (www.iupac.org/publications/ci/2008/3002/cc1_080707.html)
- (3) "Impact on Scientific Developments on the Chemical Weapons Convention", *Chemistry International*, **2008**, 30, (2); (www.iupac.org/publications/ci/2008/3003/pac7_8001x0175.html)
- (4) J. M. Malin, "Malta III – Research and Education in the Middle East", *Chemistry International*, **2008**, 30, (3); (www.iupac.org/publications/ci/2008/3003/cc4_081207.html)
- (5) H. Garelich and H. Jones, "Mitigating Arsenic Pollution: Bridging the Gap Between Knowledge and Practice", *Chemistry International*, **2008**, 30, (4); (www.iupac.org/publications/ci/2008/3004/2_garelick.html)
- (6) P. Steyn and C. Pauw, "The Role of Chemistry in Sustainable Agriculture and Human Well-Being in Africa: CHEMRAWN XII", *Chemistry International*, **2008**, 30, (5); (www.iupac.org/publications/ci/2008/3005/cc4_021207.html)
- (7) "CHEMRAWN VII Prize for Atmospheric and Green Chemistry", *Chemistry International*, **2008**, 30, (6); (www.iupac.org/publications/ci/2008/3006/iw1_chemrawn.html)

Current and Projects Involving CHEMRAWN

2008-003-1 – Regional Drinking Water Quality Assessment in the Near East – An Overview and Perspective (Y. Shevah)

2009-003-3-020 – IUPAC Support to SAICM Implementation (C. Humphris)

CHEMRAWN Conferences in recent years

CHEMRAWN XII - Chemistry, Sustainable Agriculture and Human Well-Being in Sub-Saharan Africa; Stellenbosch, South Africa (2007)

CHEMRAWN XIV - Toward Environmentally Benign Processes and Products; Boulder, Colorado, USA (2001)

CHEMRAWN XV - Chemistry for Water; Paris, France (2004)

CHEMRAWN XVI - Innovation and the Chemical Industry; Ottawa, Canada (2003)

CHEMRAWN XVII - Greenhouse Gases–Mitigation and Utilization; Kingston, Ontario, Canada (2007)

Leiv K. Sydnes
Chair
CHEMRAWN Committee

**IUPAC Committee on Chemistry and Industry
Report to IUPAC Council – 2009**

**Mark C. Cesa
Chair, COCI
9 June 2009**

I. Executive Summary

The Committee on Chemistry and Industry (COCI) is the focal point in IUPAC for issues of importance in chemistry-related industries. COCI organizes its activities into five Program Areas and interacts with the IUPAC Divisions and Standing Committees. The objectives of COCI encompass an advisory role to IUPAC leadership, engagement of the chemical industries in IUPAC activities, and projects that address the needs of the chemical industries.

The activities of COCI in the 2008-9 biennium have centered on outreach to the industrial chemical community and beyond, and there have been several new initiatives. A new initiative to engage IUPAC and the chemical industries in discussions of mutual benefit has been established, with two **Regional Workshops** in Western Europe and East Asia, entitled, "Chemistry in a Changing World – New Perspectives Concerning the IUPAC Family." At each of these workshops, representatives of regional IUPAC Company Associates, national chemical societies, and chemical industry organizations met to share experiences, express needs to IUPAC, and hear from IUPAC leaders about the efforts of the union to address relevant issues in the chemical sciences. Each workshop also provided opportunities to discuss ways that IUPAC and industry can work together to develop new projects to address mutual needs. For example, overviews of the chemical industries in individual countries in the East Asian region were unusually valuable to all the attendees in their understanding of the similarities and differences between the countries.

To improve interactions between IUPAC and industry, a new mechanism for collaboration between COCI and the IUPAC Secretariat to recruit and retain **Company Associates** has now been implemented. A program has been established that awards CA status to companies that financially support IUPAC activities such as conferences and workshops. The most recent counting of CAs shows over 140 CAs from 22 countries.

CHEMRAWN, Division VII and COCI formed a project team to offer options for IUPAC engagement in implementation of the Strategic Approach to International Chemicals Management (SAICM), in collaboration with the International Union of Toxicology (IUTOX) and the Society for Environmental Toxicology and Chemistry (SETAC). An offer was made at the International Conference on Chemicals Management (ICCM2) to organize and hold a science meeting on one or more emerging chemical management issues, with a particular emphasis on the developing world. The proposal was met with some support, but the proposal was not accepted. Further options for possible interaction with SAICM are now being discussed.

Ongoing projects include the **Safety Training Program**. COCI is planning the fourth **Safety Training Program Workshop** as part of the IUPAC Congress in Glasgow in August 2009, at which five STP Fellows and two expert professionals in chemicals management will present papers and posters on their work. The COCI project on the **responsible handling, manufacture and distribution of chemicals** has seen the completion of the first case study. COCI continues to work with CCE to provide industrial perspectives in the **public appreciation of chemistry**, with articles published in *Chemistry International*.

There are two COCI members on the Management Committee for the **International Year of Chemistry**. Engagement with the ICCA and European chemical industry and with scientific organizations such as the American Chemical Society is well under way. At the COCI project review and strategy meeting in early April 2009, the committee decided to emphasize several

current and future activities to provide **industrial input and involvement in the IYOC program** worldwide.

II. Overall Report on COCI Activities in the 2008-9 Biennium – IUPAC Strategic Goals

Following is a summary of activities since March 2008 and planned activities for 2009 and beyond, organized with reference to the IUPAC strategic goals.

a. IUPAC will provide leadership as a worldwide scientific organization that objectively addresses global issues involving the chemical sciences.

A project team led by TM Colin Humphris and including CHEMRAWN Chair Leiv Sydnes, Div. VII AM John Duffus, and COCI Chair Mark Cesa was formed to work with SAICM on **options for IUPAC engagement in SAICM implementation**; see http://www.iupac.org/publications/ci/2008/3006/pp3_2008-012-1-022.html. This project arose from discussions at and after the 2007 World Chemistry Leadership Meeting (http://www.iupac.org/publications/ci/2008/3001/3_humphris.html). The Strategic Approach to International Chemicals Management (SAICM), an initiative of the UN implemented through UNEP and WHO, is a policy framework to foster the sound management of chemicals (www.saicm.org.) IUPAC is a registered NGO with SAICM; as a result, IUPAC has an opportunity to share in discussions and information exchanges as the SAICM policy framework is developed and has access to funds through the QuickStart program for projects in collaboration with SAICM.

A team from IUPAC including IUPAC Vice President Nicole Moreau, Sydnes, Duffus, COCI Safety Training Program Fellow Fabian Benzo Moreira, and Cesa collaborated with the presidents and staff of the International Union of Toxicology (IUTOX) and the Society for Environmental Toxicology and Chemistry (SETAC) to present a proposal to the International Conference on Chemicals Management (ICCM2) in Geneva in May 2009. This proposal was to organize and hold a science meeting on one or more emerging issues related to the sound management of chemicals worldwide, with a particular emphasis on the developing world. The proposal was met with some support, but the proposal was not accepted. Further options for possible interaction with SAICM are now being discussed.

ICCM2 also provided an opportunity for the IUPAC team to speak personally with many delegations from around the world to raise awareness of IUPAC and to publicize and recruit participants in the International Year of Chemistry. Delegates left the meeting with a greater knowledge of the breadth and importance of IUPAC activities.

b. IUPAC will facilitate the advancement of research in the chemical sciences through the tools that it provides for international standardization and scientific discussion.

Work continues on the COCI project to recognize the importance of Responsible Care in the development of best practices in the developed and developing world. Canadian NR Bernard West leads the project, entitled, "Responsible Application of Chemistry: An Introduction to Responsible Care" (Project No. 2006-047-1-022). In this project the first in a series of **case studies/monographs** is in preparation on the **responsible handling, manufacture and distribution of chemicals**, and an appropriate venue for publication is being identified.

c. IUPAC will assist chemistry-related industry in its contribution to sustainable development, wealth creation, and improvement in the quality of life.

The first European **Regional Workshop** entitled, "Chemistry in a Changing World – New Perspectives Concerning the IUPAC Family," (Project No. 2006-030-1) took place on 25 April

2008 in Marl, Germany. Ideas and suggestions from the Conference were gathered and addressed to foster new collaborations. Industrial financial support from Evonik Degussa GmbH was secured under the project leadership of AM Michael Droescher and TM David Evans. In addition to COCI members, more than ten representatives of European NAOs and European companies and industry groups participated. The agenda included breakout sessions to solicit ideas and discussion on how IUPAC and COCI can specifically assist the European chemical enterprise. A summary of the results of this Workshop can be found at:

http://www.iupac.org/publications/ci/2008/3005/cc5_250408.html

With the success of the European Regional Workshop, plans were initiated to hold a series of similar regional Workshops around the world over the next several years. On 8 April 2009, the **East Asian Regional Workshop** (Project No. 2008-038-1-022) was held under the leadership of TM Akira Ishitani in collaboration with the Chemical Society of Japan (CSJ), the Science Council of Japan (SCJ) and the Kanagawa Academy of Science and Technology (KAST). Financial support was provided by the Japanese Company Associates. Invitees from NAOs and Company Associates from Japan, Korea, China and Taiwan made presentations on the issues facing chemistry and industry in their countries, and discussions were held to identify common issues where IUPAC and COCI can assist this critically important region. For example, overviews of the chemical industries in individual countries in the East Asian region were unusually valuable to all the attendees in their understanding of the similarities and differences between the countries.

A new mechanism for collaboration between COCI and the IUPAC Secretariat to recruit and retain **Company Associates** has now been implemented. To maintain subscriptions and contacts, Linda Tapp at the Secretariat communicates with NAOs that have active CA programs, and also with individual CAs from countries without CA programs. Individual members of COCI, in particular TMs Alex Pokrovsky and Khalida Al-Dalama, have successfully recruited several new CAs from their home countries, and a program has now been established that awards complimentary CA status to companies that financially support IUPAC activities such as conferences and workshops. The most recent counting of CAs shows 89 traditional CAs and 52 complimentary CAs from 22 countries.

d. IUPAC will foster communication among individual chemists and scientific organizations, with special emphasis on the needs of chemists in developing countries.

The IUPAC-UNESCO-UNIDO **Safety Training Program** saw the training of Dr. Gursharn Singh Grover of India at Novozymes in Denmark in 2008. COCI is planning the fourth **Safety Training Program Workshop** as part of the IUPAC Congress in Glasgow in August 2009; at this Workshop five STP Fellows, including three of the most recently trained persons, will present papers and posters on their work since receiving training. In addition, Dr. Steve Harper and Dr. Chris Eacott will present invited papers at the Workshop on proper management and handling of chemicals in manufacturing and laboratory environments.

We continue to receive encouraging offers to expand and ally the Safety Training Program and similar IUPAC activities related to chemical safety with other **international initiatives**. The U. S. National Academies are developing a set of materials to be used to train laboratory professionals in the developing world, in part based on IUPAC projects and publications such as the Safety Training Program and the book, *Chemical Safety Matters*. COCI is also exploring options for expansion of the STP, including exploring the feasibility of establishing regional safety training centers in the developing world (South America is the first example); preparing a vetted and standardized curriculum for Host Companies in the STP; recruitment of new Host Companies; development of Spanish-language Internet modules on safety topics covered in Safety Training Program visits; and incorporating and expanding the series of case studies/monographs on the responsible handling, manufacture and distribution of chemicals.

In addition, COCI is continuing to explore ways to establish an **Industrial Chemistry Prize**.

COCI continues to publish a twice-yearly summary of **IUPAC Projects of Interest to Industry** for circulation to NAOs and Company Associates. The most recent issue was distributed in March 2009.

e. IUPAC will utilize its global perspective and network to contribute to the enhancement of chemistry education, the career development of young chemical scientists, and the public appreciation of chemistry.

COCI is represented on the Management Committee for the **International Year of Chemistry** by TM Colin Humphris and Chair Mark Cesa. Humphris has made progress in gaining the attention of representatives of the ICCA and European chemical industry with respect to the IYC, and Cesa, along with John Malin and Bryan Henry, met with several key audiences in the American Chemical Society in March on their efforts to organize programs for 2011 relevant to the IYC. In addition, at the COCI project review and strategy meeting in early April 2009, the committee brainstormed current and future activities to provide **industrial input and involvement in the IYOC program** worldwide.

COCI continues to work with CCE to provide industrial perspectives in the **public appreciation of chemistry**. TM David Evans has published an article on the scientific method for publication in the May-June 2009 issue of *Chemistry International*; see http://www.iupac.org/publications/ci/2009/3103/3_evans.html.

Two articles in a continuing series on nanotechnology were published by NR Alan Smith (UK) in *Chemistry International*; see http://www.iupac.org/publications/ci/2007/2906/4_smith.html and http://www.iupac.org/publications/ci/2009/3101/4_coulsey.html.

f. IUPAC will broaden its national membership base and will seek the maximum feasible diversity in membership of IUPAC bodies in terms of geography, gender, and age.

The program of **Division Representatives to COCI** is continuing through 2009. These representatives will receive relevant communications on COCI activities and will be invited to COCI meetings, and members of COCI will continue to be involved in activities of the Divisions to which they represent COCI.

COCI continues to work toward **increased diversity** in its membership. The proposed COCI roster for 2010-11 contains members from twenty-two countries, with five new proposed members.

III. Other Information

The Committee on Chemistry and Industry (COCI) is the focal point in IUPAC for issues of importance in chemistry-related industries. COCI organizes its activities into five Program Areas and interacts with the IUPAC Divisions and Standing Committees.

The principal objectives of COCI are set forth in its Terms of Reference, paraphrased as follows:

- 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.

COCI reviews its strategy on a regular basis at strategy and project review meetings held for Titular Members and other interested persons between the annual COCI meetings. COCI continues to place 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

The Program Areas in COCI are as follows:

Health, Safety and Environment
Public Appreciation of Chemistry
NAO/Company Associates Recruitment and Retention
NGO/IGO/Trade Association
Division and Standing Committee Collaborations

To foster collaboration with the Divisions and Standing Committees, COCI has established representatives to each of the Divisions and SCs and has recruited representatives from each of the Divisions and SCs to COCI. We plan to continue to attend Division meetings to present progress on COCI activities and to invite Division Representatives to do the same at COCI meetings. Partially as a result of these interactions, COCI has been involved in two interdivisional projects in this biennium.

IV. Projects, Publications and Membership

Projects in 2008-2009 Biennium

1. 2004-032-1-022, IUPAC-UNESCO-UNIDO Safety Training Program, M. C. Cesa, completion date 31 Dec 2009.
2. 2005-042-1-300, Chemistry For Biology – An Inventory of Interdivisional and Interdisciplinary Activities Within IUPAC in the Field of Biological Chemistry, T. Norin, completed.
3. 2006-030-1-022, Chemistry in a Changing World – New Perspectives Concerning the IUPAC Family, M. Droescher, completion date 31 Dec 2009.
4. 2006-047-1-022, Responsible Application of Chemistry – An Introduction to Responsible Care, B. West, completion date 31 Dec 2009.
5. 2006-051-1-022, IUPAC-UNESCO-UNIDO Safety Training Program Workshop, Turin, Italy, M. C. Cesa, completed.
6. 2007-015-2-100, Future Energy: Improved, Sustainable and Clean Options for our Planet, T. Letcher, completed.

7. 2008-012-1-022, Options for IUPAC Engagement in SAICM Implementation, C. Humphris, completed.
8. 2008-038-1-022, Chemical Industries and IUPAC 2 – Workshop, Kawasaki, Japan, A. Ishitani, completion date 31 Mar 2010.
9. 2009-003-2-020, IUPAC Support to SAICM Implementation, C. Humphris, completion date 31 Mar 2010.
10. 2009-001-2-022, IUPAC-UNESCO-UNIDO Safety Training Programme, Glasgow, M. Cesa, completion date 31 Mar 2010.

Publications

1. Smith, Alan, "Nanotechnology – The New Chemistry." *Chemistry International*, **November-December 2007**, 29(6), 13-15;
http://www.iupac.org/publications/ci/2007/2906/4_smith.html
2. Humphris, Colin and Cesa, Mark, "The Emerging Chemical Regulatory Environment: Proceedings of the World Chemistry Leadership Meeting," *Chemistry International*, **January-February 2008**, 30(1), 10-13;
http://www.iupac.org/publications/ci/2008/3001/3_humphris.html
3. Booth, Michael, "Division Roundups – Part II, Committee on Chemistry and Industry." *Chemistry International*, **January-February 2008**, 30(1), 18;
http://www.iupac.org/publications/ci/2008/3001/5_divroundups.html
4. Droscher, Michael, "Chemistry in a Changing World – New Possibilities Within the IUPAC Family." *Chemistry International*, **September-October 2008**, 30(5), 32-33;
http://www.iupac.org/publications/ci/2008/3005/cc5_250408.html
5. "Options for IUPAC Engagement in SAICM Implementation." *Chemistry International*, **November-December 2008**, 30(6), 16-17;
http://www.iupac.org/publications/ci/2008/3006/pp3_2008-012-1-022.html
6. Coulsey, Hilda and Smith, Alan, "Nanotechnology in Good Health?" *Chemistry International*, **January-February 2009**, 31(1), 13-16;
http://www.iupac.org/publications/ci/2009/3101/4_coulsey.html
7. Evans, David A., "Scientific Method – Can It Help Promote the Public Appreciation of Science?" *Chemistry International*, **May-June 2009**, 31(3), 12-15;
http://www.iupac.org/publications/ci/2009/3103/3_evans.html

Members 2008-9

Titular Members

Mark C. Cesa (United States) – Chair
 Michael D Booth (South Africa) – Secretary and Treasurer
 Aldo Bologna Alles (Uruguay)
 David A. Evans (United Kingdom)
 Colin Humphris (United Kingdom)
 Akira Ishitani (Japan)
 Alexandre Pokrovsky (Russia)
 Khalida Al-Dalama (Kuwait)

Associate Members

COCI Report to Bureau 2008**7**

Michael Droescher (Germany)
Janos Fischer (Hungary)
Jacek Kijenski (Poland)
Nedyalko T. Popov (Bulgaria)
Esma Toprak (Turkey)
Bernard West (Canada)

National Representatives

Paul Baekelmans (Belgium)
Daniel Bernard (France)
Cao Xianghong (China)
Hideyuki Ishida (Japan)
Weon Lee (Korea)
Carolyn Ribes (United States)
Alan Smith (United Kingdom)
Hendrik Timmermann (Netherlands)
Klaus Urbahns (Nordic Countries)

Provisional Member

Tersoo Gwaza (Nigeria)

Mark Cesa
9 June 2009

Date: June 4, 2009
From: Peter Mahaffy, CCE Chair
To: IUPAC Council
Re: Committee on Chemistry Education Chair's Report to Council

This report highlights significant CCE activities during the current year and plans for new initiatives in the next biennium, emphasizing activities leading up to the International Year of Chemistry in 2011.

1. CCE terms of reference
 2. How does CCE carry out its work?
 3. Current priorities
 4. Highlights of recent and new initiatives
 5. Current projects
 6. Membership, roles and sub-committees/working groups
-

1. CCE terms of reference

- (a) To advise the President and the Executive Committee on matters relating to chemistry education, including the public appreciation and understanding of chemistry.
- (b) To maintain a portfolio of educational projects and to coordinate the educational activities of IUPAC.
- (c) To monitor chemistry education activities throughout the world and to disseminate information relating to chemical education, including the public appreciation and understanding of chemistry.
- (d) To develop liaisons with international organizations such as UNESCO, national and regional chemical societies, chemical education committees, and organizations concerned with the public appreciation and understanding of science.

2. How does CCE carry out its work to meet these terms of reference?

CCE met as a full committee at the 20th International Conference in Chemistry Education (ICCE) in Mauritius in August, 2008. Following our 2009 meeting at the IUPAC General Assembly, the committee will meet again at the 21st ICCE in Taipei in 2010. In formal meetings and beyond, CCE accomplishes its work through the dedicated efforts of 8 titular members, 8 associate members representing divisions, 23 national representatives and three ex officio members - representing 35 countries.

Our work is carried out through projects; through two subcommittees - Chemistry Education for Development, chaired by NR Mei-Hung Chiu (Taiwan) and the CCE International Year of Chemistry Subcommittee, co-chaired by Mustafa Sozibilir (Turkey) and Anthony Wright (Australia); and through biennial ICCE conferences. In addition, educational activities are carried out in cooperation with IUPAC divisions and standing committees, coordinated by TM and division liaison, Eva Åkesson (Sweden). CCE also works with partners outside of

IUPAC. Presently CCE has working and/or developing partnerships with UNESCO, Science across the World, and the Chemical Heritage Foundation (USA). Numerous additional collaborations with IUPAC Divisions and Standing Committees and external partners are formed to accomplish the objectives of particular projects.

Current priorities

As discussed in some detail in the 2007 report to Council, CCE establishes priorities for its work at the beginning of each biennium. The six priorities that presently shape the committees' work are listed below. These priorities will be the starting point for discussions at the 2009 Glasgow CCE meetings of the new priorities to guide CCE work in the 2010-2011 biennium. We anticipate that priorities for the next biennium will be framed so as to facilitate meaningful CCE and IUPAC contributions to a successful International Year of Chemistry.

- (a) To foreground the importance of learner-centred chemistry curriculum, both in the developed and developing world. The extent to which this is done should be one criterion used to assess educational projects.
- (b) The efforts of CCE's Public Understanding of Chemistry committee will be focused on obtaining designation for an International Year of Chemistry and contributing to implementation, as appropriate.
- (c) To give priority to initiatives that highlight the relationship between chemistry and sustainable development, consistent with the goals of the UN Decade for Education for Sustainable Development.
- (d) To continue to support initiatives that raise awareness and understanding of ethical issues that are important in chemistry.
- (e) The biennial International Conferences on Chemistry Education are flagship activities for CCE. We seek to more fully integrate ICCE activities into the work of CCE and use ICCE conferences to report the outcomes of CCE projects and bring participants together to implement CCE strategies
- (f) To build chemistry education networks, using fully the multicultural competence within CCE.

3. Highlights of recent and new CCE initiatives.

Rather than comprehensively list projects and activities that address current priorities, this report highlights several exemplary activities and significant new initiatives for CCE in 2009, and points out how they flow out of existing priorities and will help to establish new ones.

- **UNESCO and UN designation of IYC.** Since the last report to Council, a major preoccupation of the CCE chair has been to give leadership, along with others on CCE and the Bureau, to navigate the complex web of processes needed to obtain designation by UNESCO and the UN of 2011 as an International Year of Chemistry. It was most rewarding to work closely with our colleagues at UNESCO Division of Basic Sciences and Engineering, who laid the groundwork for this successful outcome by meeting in person with key individuals to seek their support and obtain timely advice. The IUPAC secretariat provided the needed vital and timely communication with NAOs and other participants in the process. The success, however, was due in large part to the extraordinary support by many NAOs who worked at national and regional levels. In particular IUPAC owes a huge debt of gratitude to the chemists and diplomatic community of one of the newest members of the IUPAC family, Ethiopia – who championed this at both the UNESCO and UN levels with countless colleagues. The

process of obtaining designation, has, in itself, strengthened important bridges for IUPAC with global partners that we must build on leading up to 2011 and far beyond. I draw Council's attention to the list of countries that formally sponsored this resolution at the UNESCO Executive Committee and the United Nations alongside Ethiopia, and note that many do not have official ties to IUPAC. This group of countries has formally advocated at the United Nations for a celebration of the importance of chemistry and chemistry education, and working with them leading up to and following IYC presents a strategic opportunity for IUPAC to build an even stronger and more truly global network of chemists and educators.

Sponsoring countries (UNESCO Executive Committee): Ethiopia, Algeria, Benin, China, Côte d'Ivoire, Cuba, Democratic Republic of the Congo, Egypt, France, India, Japan, Kuwait, Madagascar, Malaysia, Morocco, Niger, Nigeria, Republic of Korea, Russian Federation, Senegal, South Africa, Togo, Uganda, United Republic Tanzania and Zambia.

Sponsoring countries (United Nations): Ethiopia, Brazil, Cuba, Democratic People's Republic of Korea, Djibouti, Egypt, Ghana, Israel, Japan, Kenya, Libyan Arab Jamahiriya, Malawi, Nigeria, Oman, Republic of Korea, Rwanda, Sierra Leone, South Africa, the former Yugoslav Republic of Macedonia, Ukraine, United Republic of Tanzania, Uruguay, Viet Nam and Yemen. (*At time of writing this report, this preliminary list is incomplete, and the full list of about 35 countries will be made available to Council in Glasgow.*)

- **Formation of CCE International Year of Chemistry Subcommittee.** IYC 2011 provides the opportunity of a lifetime to catalyze imaginative thinking by chemists, students, and the general public about what it's like to live in a chemical world. As was highlighted in the 2007 report to Council, CCE recommends that we see the developing networks and activities of IYC not as an end point in 2011, but as the first steps toward building further IUPAC's leadership role in the areas of public understanding and science policy.

In keeping with CCE's terms of reference, our resources and global educational network will be directed to whatever extent possible to mesh and build synergy with other IYC activities and programs over the next biennium. To that end, as identified in Priority (b) above, CCE has determined that its public understanding of chemistry activities should be focused on contributing to the planning and activities needed for a successful International Year of Chemistry.

Our recently appointed CCE IYC Subcommittee replaces the CCE Public Understanding of Chemistry Sub-Committee for this biennium. Two CCE members (Mahaffy and Tarasova) also serve on the IYC Management committee, and they will help ensure good two-way communication, and also avoid duplication of efforts. While the subcommittee mandate will be further fleshed out in Glasgow, we see its role as (a) advising on some global educational activities that might be part of the year's activities, (b) advising on how activities might be made available to countries with less well-resourced chemical societies and NAOs, (c) recommending ways to integrate existing CCE programs such as YAC, FCP, and microscale workshops into IYC activities, and (d) using the momentum of IYC to build sustainable partnerships with UNESCO and other partners and regional networks of chemistry educators.

- **Current CCE activities with potential for contribution to IYC.** Several on-going projects and activities have significant potential for contributing to IYC. These include:
 - **Young Ambassadors for Chemistry (YAC).** The YAC program was originally set up as a partnership between CCE and Science Across the World. Using a '*Train the*

Trainers' approach, YAC facilitators have worked with teachers and students to increase public appreciation for and understanding of chemistry in Argentina, Bulgaria, Egypt, Jordan, Korea, Lithuania, Russia, South Africa, and Taiwan.

Since the last CCE report, a successful YAC event was held in Mauritius in August 2008, just prior to the ICCE conference. The model and activities used here have now catalyzed new programming in the Mauritian ministry of education. Another YAC program was organized in Nicosia, Cyprus in April 2008. The FCP program visit in the Philippines (see next item) has also led to interest in a YAC program, with two YAC events tentatively planned for October 2009, one in Manila and one in the South.

CCE felt it important to ensure that careful assessment of the impact of this program on teacher attitudes is carried out. To provide the data needed for this assessment, IUPAC project # 2007-005-2-050 has been initiated to provide research-based evidence about longer term outcomes. TM Lida Schoen has been the tireless and imaginative moving force behind the YAC initiative, and leadership for the overall program is now shared with other CCE members, particularly NR Erica Steenberg and TM Mei-Hung Chiu.

CCE envisions both YAC programs and the model used by YAC to be important contributions to IYC 2011. Sharing YAC strategies will take place at both the IUPAC Congress in Glasgow and the 2010 ICCE Conference in Taipei.

- **Flying Chemist Program (FCP).** The third FCP program visit took place in April 2008 in the Philippines, following an organizational workshop six months earlier coordinated by Chemistry Education for Development sub-committee chair Mei-Hung Chiu and the CCE chair. Designed to improve teaching and learning of chemistry at the tertiary level in the Philippines, a group of 324 tertiary-level chemistry teachers came together for a two-day event, organized by the Commission on Higher Education (CHED), the government body covering higher education institutions in the Philippines, in cooperation with the Kapisanang Kimika ng Pilipinas (Chemical Society of the Philippines) and the University of Santo Tomas. Attendees came from all the regions of the country and represented 89 different institutions of higher education in the Philippines. Among the participants were 12 young chemistry teachers who received travel grants through the IUPAC Program on Financial Support of Conferences.

CCE intends to organize two additional FCP programs in the next biennium, and to coordinate this initiative in 2011 with regional IYC activities, perhaps in sub-Saharan Africa. Chemistry Education for Development sub-committee chair Mei-Hung Chiu has given excellent guidance to the FCP program, and she would welcome your ideas about the future of the program.

- **Using chemistry education networks.** CCE has played an important role in establishing and supporting regional chemistry education networks. Leading up to the IYC, we will make use of networks such as the Network of Inter-Asian Chemistry Educators (NICE), Asian Chemistry Education Network of the Federation of Asian Chemical Societies (ACEN-FASC), and various African, American, and European networks to coordinate regional IYC activities. In particular, the NICE network resulted from discussions within CCE and the ICCE conferences, and four present and former CCE members co-chair the 3rd NICE symposium, to be held in Tokyo in July 2009 - Masahiro Kamata (Japan), Masato M. Ito (Japan), Mei-Hung Chiu (Taiwan), and Choon H. Do (Korea).

- **Microscale program.** John Bradley (South Africa) continues to guide a program of introducing teachers in developing countries to microscale techniques and experiments, and this was also one of the themes of the FCP visit to the Philippines, facilitated by resource person Jorge Jibañez (Mexico). Additional microscale workshops would be appropriate activities during the IYC.
- **Role of chemistry in understanding and providing solutions to climate change.** The UN resolution declaring 2011 as an IYC highlights the role of chemistry in sustainable development and in addressing challenges such as global climate change. CCE has initiated a project (# 2008-043-1-050) in collaboration with the Royal Society of Chemistry, the American Chemical Society, UNESCO, and the Alberta Centre for Research in Youth Science Teaching and Learning (CRYSTAL Alberta) to develop and disseminate a set of interactive, web-based materials to visualize and understand the underlying science of climate change. We propose delivering these materials in time for the International Year.

As chair of this project task group, I draw to Council's attention that the visual icon of our present day scientific understanding of the changing role of CO₂ in our planet's climate is a graph of atmospheric CO₂ concentrations from the Mauna Loa observatory in Hawaii, beginning in 1957 (the 'Keeling Curve'). Discussions during the 1957 International Geophysical Year drew attention to the need for better fundamental scientific understanding of trace atmospheric gases. This set the stage for using the Mauna Loa observatory for monitoring studies.

As a legacy of understanding to future generations, might IYC 2011 serve to challenge the network of IUPAC chemists to imagine and implement both scientific and educational accomplishments of similar impact relevant to gaps in our understanding of the chemistry of our changing climate and the development of solutions to climate change?

- **Interdivisional/standing committee projects.** CCE is committed to contributing to joint projects with other divisions/committees – at present this includes the development of an isotopic periodic table, an abridged version of the Green book, and the ethical conduct of chemists. Division liaison Eva Åkesson has gone to substantial effort to build stronger relationships with divisions, and we look forward to fruitful collaborations in the next biennium.
- **Development of a framework of priorities for CCE.** A project proposal is under review to develop a framework to assist CCE (and through CCE, IUPAC) to more effectively prioritize its educational activities. This project, which is led by former NR Tony Ashmore (UK), should be particularly helpful in considering what educational activities CCE and IUPAC can best coordinate during IYC 2011, and which might best be carried out by national chemical societies and others.
- **Areas of strong interest, possibly to be developed into projects.** Under consideration at our Mauritius meeting were several topics which we anticipate may develop into projects. These include: learning outcomes, student misconceptions in chemistry, sharing ideas of how countries can best tell their own stories of chemical achievement leading up to IYC, and green chemistry.
- **ICCE conferences.** The 20th ICCE was held in Mauritius, August 3-8, 2008, with a satellite conference in Nairobi, Kenya (<http://www.uom.ac.mu/20icce.htm>) immediately following. The 21st ICCE will be held in Taipei in August 2010. CCE has expressed a strong preference for locating the 2012 meeting in Europe, perhaps jointly with a European chemistry education meeting. Bids from several European conference hosts

have been received, and CCE will make a decision on the venue for this conference at its Glasgow meetings. Morton Hoffmann (USA), our conference coordinator has worked closely with local organizers to facilitate this important biennial event for CCE.

- **Communication, the secretariat and Chemistry International.** The success of all of these activities and projects depends on CCE being able to communicate effectively with others within IUPAC and with external partners. We owe a debt of gratitude to the secretariat for their assistance, and particularly to Fabienne Meyers for her excellent coverage of IUPAC's educational activities in our official newsmagazine, Chemistry International.

4. Current CCE Projects

- 2008-042-1 - Development of a framework of priorities for CCE
- 2008-043-1-050 - Visualizing and understanding the science of climate change
- 2007-005-2-050 – Research-Based Evaluation of the Young Ambassadors for Chemistry (YAC) Programme
- 2002-021-2-050 - A feasibility study of the scope and limitation of machine translations as a means of disseminating useful reading material for chemical education on the internet

Completed in the past year

- 2007-018-1-050 – Toward an Improved Teaching and Learning of Chemistry at the Tertiary Level in the Philippines
- 2007-011-1-050 - International Year of Chemistry - Initial strategy planning
- 2006-043-3-050 - The Social Responsibility of Chemists: Responsible Stewardship

Joint Projects with Other Divisions/Standing Committees

- 2007-038-3-200 - Development of an isotopic periodic table for the educational community
- 2007-032-1-100 – Green Book – Abridged Version, Joint with Div I
- 2007-050-2-600 – Climate and Global Change: Observed Impacts on Planet Earth, joint with Div VI
- 2007-022-2-020 – Recommendations for Codes of Conduct
- 2006-050-3-100 – Wet Surface Vibrational Spectroscopy Experiments, Joint with Div I
- 2004-037-1-400 – Design of Polymer Education Material for French Speaking Countries, joint with Div. IV
- 2004-045-1-700 – Training of School Children on Pesticides and Health – Toxicology in the Classroom, Joint with Div. VII

Projects Under review

- 2008-017-4 – Green chemistry – creation and implementation of international cooperation in teaching and investigations.

5. Current Membership, Roles and Sub-Committees (2008-2009)

- Prof. Peter G. Mahaffy (Canada) – *Chair*
- Prof. Eva Åkesson (Sweden) – *Secretary and division liaison*

Titular Members

- Prof. Mei-Hung Chiu (China/Taipei)
- Prof. Choon H. Do (Korea)
- Prof. Ram S. Lamba (Puerto Rico)
- Dr. Lida Schoen (Netherlands)
- Prof. Mustafa Sözbilir (Turkey)
- Prof. Natalia P. Tarasova (Russia)

Associate Members (Divisional Representatives)

- Prof. A. James McQuillan (New Zealand)
Physical and Biophysical Chemistry
- Dr. Javier Garcia-Martinez (Spain)
Inorganic Chemistry
- Prof. Mary Garson (Australia)
Organic and Biomolecular Chemistry
- Prof. Jean-Pierre Vairon (France)
Polymer
- Prof. Roger M. Smith (United Kingdom)
Analytical Chemistry
- Dr. Hemda Garelick (United Kingdom)
Chemistry and the Environment
- Dr. Mukund S. Chorghade (United States)
Chemistry and Human Health
- Prof. Richard Hartshorn (New Zealand)
Chemical Nomenclature and Structural Representation

National Representatives

- Prof. Tony Wright
Australia
- Ludo Brandt
Belgium
- Prof. Borislav Toshev
Bulgaria
- Prof. Qiankun Zhuang
China/Beijing
- Prof. Ameen Farouk M. Fahmy
Egypt
- Dr. Christiane Reinert
Germany

- Prof. Miklos Riedel
Hungary
- Prof. Uday Maitra
India
- Prof. Peter E. Childs
Ireland
- Dr. Mordechai Livneh
Israel
- Prof. Liberato Cardellini
Italy
- Prof. Masahiro Kamata
Japan
- Prof. Abdulaziz A. Al-Najjar
Kuwait
- Prof. Farzana Mahmood
Pakistan
- Prof. Erica Steenberg
South Africa
- Prof. Katarina Edström
Sweden
- Prof. Phillippe Boesch
Switzerland
- Prof. Morton Z. Hoffman – *Conference coordinator*
United States
- Prof. Norman Reid
United Kingdom

Ex Officio

- Prof. John D. Bradley (South Africa), *Consultant for microscale programme*
- Mark C. Cesa (USA), *COCI Representative*
- Audra Wolfe (USA), *Chemical Heritage Foundation*

Subcommittee on Chemistry Education for Development

- Prof. Mei-Hung Chiu (China/Taipei), *Chair*
- Prof. John Bradley (South Africa)
- Prof. Bob Bucat (Australia)
- Dr. Derek S.P. Cheung (China/Hong Kong)
- Prof. Masahiro Kamata (Japan)
- Prof. Ram Lamba (Puerto Rico)
- Dr. Jing-Wen Lin (China/Taipei)
- Dr. Lida Schoen (Netherlands)
- Dr. Erica Steenberg (South Africa)
- Prof. Natalia Tarasova (Russia)

CCE Subcommittee on International Year of Chemistry

- Prof. Mustafa Sözbilir (Turkey), *co-chair*
- Prof. Anthony Wright (Australia), *co-chair*
- Prof. Liberato Cardellini (Italy)
- Prof. Christiane Reiners (Germany)
- Dr. Lida Schoen (Netherlands)
- Prof. Jana Soukupova (Czech Republic)
- Prof. Natalia Tarasova (Russia)

CCE Project Group

- Prof. Choon H. Do (Korea) – *Project Coordinator*
- Prof. Mei-Hung Chiu (Taiwan)
- Prof. Kristina Edström (Sweden)
- Prof. Morton Z. Hoffman (USA)
- Prof. Masahiro Kamata (Japan)
- Prof. A. James McQuillan (New Zealand)
- Prof. Mustafa Sözbilir (Turkey)

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

**Interdivisional Committee on Terminology, Nomenclature and Symbols (ICTNS)
Biennial Report, August, 2007 to August, 2009****Executive Summary**

During the biennium August, 2007 to August 2009, ICTNS continued its activities on behalf of IUPAC in reviewing and approving for publication 27 Technical Reports and Recommendations, resulting in 1127 published pages in *Pure and Applied Chemistry*. Three other publications reviewed by ICTNS emanated from international bodies of which IUPAC is a member. In addition, the new “Purple Book” was also reviewed by ICTNS before publication, and updates to the on-line “Gold Book” continued.

Two important changes concerning ICTNS were initiated. The first, to clarify the meaning of “manuscripts containing new experimental data”, was suggested to the Secretary General, and new wording was supplied by him and approved by ICTNS. The second, to provide a mechanism for reviewing IUPAC-sponsored books for adherence to IUPAC standards of terminology, symbols, units and nomenclature, was the subject of a submission to the Bureau by ICTNS. The Bureau approved guidelines, and requested ICTNS to provide detailed wording, which is now under review.

ICTNS monitored and was consulted on IUPAC’s interactions with international metrological societies on which IUPAC has representation.

ICTNS acted as a resource for the Secretariat in answering many questions received from a wide variety of students and professionals on terminology, symbols, units and general scientific questions.

1. ICTNS Biennial Report, August, 2007 to August, 2009**1.1 Terms of Reference of ICTNS**

These include:

(a) To be responsible for submission to the Bureau/Council,..., for publication or otherwise, any IUPAC document concerned with terminology, nomenclature, symbols, and other conventions.

(b) Before recommending any material for publication as an IUPAC document, to ensure that full consultations have taken place, and the widest possible consensus has been reached among all Divisions and other bodies of the Union, and between IUPAC and other ICSU bodies, the international standardizing organizations, and the CGPM and its committees.

ICTNS is thus responsible for editing and approving the content of IUPAC Recommendations and Technical Reports for publication in *Pure and Applied Chemistry*, and also for approving, on behalf of IUPAC, publications emanating from international bodies on which IUPAC has representation. Editing of these publications is carried out by the respective organization.

ICTNS carries out these tasks by very extensive review processes. For IUPAC Recommendations, a Public Comment Period of five months is required, with input from ICTNS members within three months. Both Recommendations and Technical Reports are carefully scrutinized for conformability with

IUPAC-approved terminology and nomenclature, and are also edited carefully for scientific content. For documents whose source lies with international bodies, ICTNS also carries out careful reviews. The overall goal in these activities is to continue and enhance IUPAC's reputation as a source of international standards in chemical terminology and nomenclature through publication of *Pure and Applied Chemistry* and continuing interaction with international organizations.

Publication of the on-line version of the "Gold Book" provides an opportunity for almost continuous update of IUPAC-approved terminology, as well as corrections where necessary.

ICTNS maintains up-to-date and detailed instructions of preparation of publications for *Pure and Applied Chemistry*, and also acts as a consulting resource for the Secretariat and other IUPAC bodies in replying to queries from professionals and students on problems in terminology and nomenclature.

The terms of reference require ICTNS to conduct, and advise the Executive Committee accordingly, all negotiations concerned with nomenclature and symbols with other ICSU bodies, with international standardizing organizations, and with CGPM and its committees. This measure ensures that IUPAC views carry the fullest possible weight among other international organizations. In practice, ICTNS maintains contact with IUPAC representatives on these organizations and also through ICTNS members from the Bureau International des Poids et Mesures (BIPM), International Organization for Standardization (ISO), and the International Unions for Biochemistry and Molecular Biology (IUBMB), Crystallography (IUCr), Pharmacology (IUPHAR), and Pure & Applied Physics (IUPAP). For example, in 2007, ICTNS considered the advisability of recommending a proposal from CCU (Consultative Committee on Units of BIPM) re-define the SI base units in terms of atomic quantities.

2.0 Changes to Operating Procedures

ICTNS initiated two changes to operating procedures.

- (1) Publication of IUPAC reports in journals other than *PAC*, and publication of reports that contain new experimental data
- (2) Review of IUPAC-sponsored Books for Adherence to IUPAC Standards of Nomenclature, Terminology, Symbols and Units

This initiative arose from correspondence with the Executive of the ISCT (International Society for Chemical Thermodynamics). A submission was made to the Bureau to point out that there was no clear mechanism for carrying out this type of review, and to ask for instructions. The Bureau recognized that problem, and replied that the review should be conducted by ICTNS, and added several instructions, but asked ICTNS to provide the final wording. A draft has been prepared and is under review.

J. W. Lorimer, Chairman

B. J. Herold, Secretary

2009-06-19

APPENDIX

2.0 Summary of Publications in *PAC* for the Period 1 June, 2007 to 31 June, 2009

The previous report covered the period to 31 May, 2007. Following the Manuscript Central reference number and the title, the name of the lead author(s) and the Division or other organization where the project originated are given.

| PAC vol. | Total Articles | | | Technical Reports | | | Recommendations | | |
|------------|----------------|-------|-----------|-------------------|-------|-----------|-----------------|-------|-----------|
| | number | pages | av. Pages | number | pages | av. pages | number | pages | av. pages |
| 77 (2005) | 12 | 414 | 35 | 9 | 267 | 30 | 3 | 147 | 49 |
| 78 (2006) | 13 | 354 | 27 | 8 | 168 | 21 | 5 | 186 | 37 |
| 79 (2007) | 8 | 466 | 58 | 4 | 135 | 34 | 4 | 331 | 78 |
| 80 (2008) | 12 | 463 | 39 | 6 | 168 | 28 | 6 | 295 | 48 |
| 81 (2009)* | 9 | 353 | 39 | 6 | 148 | 25 | 3 | 205 | 68 |

* to end of June, 2009

2.1 Publications reviewed, edited and approved by ICTNS for publication in *Pure and Applied Chemistry*

Total Recommendations and Technical Reports: 27

Total pages published June, 2007 to June, 2009: 1120

2.1.1 IUPAC Recommendations

Total number: 13

Total pages published: 776

1. PAC-REC-06-04-02. IUPAC Glossary of Terms Used in Toxicology, 2nd ed. J. H. Duffus, M. Nordberg, D. M. Templeton - VII. . *PAC* **79** [7], 1153-1344 (2007). 192 pp.
2. PAC-REC-06-01-06. IUPAC Explanatory Dictionary of Key Terms in Toxicology. M. Nordberg, J. H. Duffus, D. M. Templeton. - VII). *PAC* **79** [9], 1583-1633 (2007). 51 pp.
3. PAC-REC-06-02-01. Definitions of Terms Related to the Structure and Processing of Inorganic and Polymer Gels and Networks, and Inorganic-polymeric Materials. J. Alemán, A. V. Chadwick, J. He, M. Hess, K. Horie, R. G. Jones, P. Ktatochvil, I. Meisel, I. Mita, G. Moad, S. Penczek, R. F. T., Stepto. - IV. *PAC* **79** [10], 1801-1829 (2007). 29 pp.
4. PAC-REC-06-12-04. Further Conventions for NMR Chemical Shifts. R. K. Harris, E. D. Becker, S. M. Cabral de Menezes, P. Granger, R. E. Hoffman, K.W. Zilm. - I. *PAC* **80**[1], 59-84 (2008). 26 pp.
5. PAC-REC-06-12-03. Structure-based Nomenclature for Cyclic Macromolecules. W. Mormann, K.-H. Hellwig - IV. *PAC* **80**[2], 201-232 (2008). 32 pp.
6. PAC-REC-07-03-01 Glossary of Terms Related to Solubility. H. Gamsjäger, J. W. Lorimer, P. Scharlin, D. G. Shaw - V. *PAC* **80**[2], 233-276 (2008). 44 pp.
7. PAC-REC-07-02-0. Graphical Representation Standards for Chemical Structure Diagrams. J. Brecher - VIII. *PAC* **80**[2], 277-410 (2008), 134 pp.
8. PAC-REC-05-12-09. Nomenclature of Rotaxanes. A. Yerin, E. S. Wilks, G. P. Moss, A. Harada - VIII. *PAC* **80**[9], 2041-2068 (2008). 28 pp.
9. PAC-REC-07-02-02 Glossary of Terms Related to Kinetics, Thermodynamics and Mechanisms of Polymerization. S. Penczek, G. Moad - IV. *PAC* **80**[10], 2163-2193 (2008). 31 pp.

10. PAC-REC-08-05-02. Dispersity in Polymer Science. R. F. T. Stepto – IV. *PAC* **81**[2], 351-353 (2009) 3 pp.; Erratum *PAC* **81** [4], 779 (2009) (1 p.)
11. PAC-REC-08-07-09 Glossaary of Terms Used in Ecotoxicology. M. Nordberg, D. M. Templeton, O. Andersen, J. H. Duffus – VII. *PAC* **81** [5], 829-970 (2009) (142 pp.)
12. PAC-REC-04-10-14. Compendium of Terms Used in Pharmaceutics. E. Breuer, M. S. Chorgade, J. Fischer, G. Golomb – VI. *PAC* **81**[5], 971-999 (2009); (29 pp.)
13. PAC-REC-08-01-30. Glossary of Class Names of Polymers Based on Chemical Structure and Molecular Architecture. M. Barn, K.-H. Hellwich, M. Hess, K. Horie, A. D. Jenkins, R. G. Jones, P. Kratochvil, W. V. Metanomski, W. Mormann, R. F. T. Stepto, J. Vohlidal, E. S. Wilks - IV. *PAC* **81** [6], 1153-1186 (2009) (34 pp.)

2.1.2 IUPAC Technical Reports

Total number: 14

Total pages published: 344

14. PAC-REP-06-04-09. Critically Evaluated Rate Coefficients for Free-radical Polymerization 6: Propagation Rate Coefficient of Methacrylic Acid in Aqueous Solution. S. Beuermann, M. Burbank, P. Hesse, F.-D. Kuchta, I. Lacik, A. M. van Herk - IV. *PAC* **79**[8], 1463-1469 (2007). 7 pp.
15. PAC-REP-06-07-05. Representation of Configuration in Coordination Polyhedra and the Extension of Current Methodology to Coordination Numbers Greater than Six. R. M. Hartshorn, E. hey-Hawkins, R. Kalio, G. J. Leigh - VIII. *PAC* **79**[10], 1779-1799 (2007). 21 pp.
16. PAC-REP-07-03-03 Performance Evaluation Criteria For Preparation and Measurement Of Macro and Microfabricated Ion-Selective Electrodes. E. Lindner, Y. Umezawa - V. *PAC* **80**[1], 85-104 (2008). 20 pp.
17. PAC-REP-06-01-06. Solute Movement in Soils with Potential Rapid By-pass Transport (Pesticide Movement in Soils) Actual title: Transport of Pesticides via Macropores. W. Kördel, H. Egli, M. Klein - VI. *PAC* **80**[1], 105-160 (2008). 56 pp.
18. PAC-REP-07-06-05 Chemists and the “Public”. P. Mahaffy, A. Ashmore, B. Bucat, Choon Do, M. Rosborough - CCE. *PAC* **80**[1], 161-174 (2008). 14 pp.
19. PAC-REP-07-10-04. Impact of Scientific Developments on the Chemical Weapons Convention M. Balali-Mood, P. S. Steyn, L. K. Sydnes, R. Trapp - International Advisory Board. *PAC* **80**[1], 175-200 (2008). 26 pp.
20. PAC-REP-07-07-03. Recommendations on the Measurement and Analysis of Results on Biological Substances with Isothermal Titration Calorimetry. F. P. Schwarz, T. Reinisch, H.-J. Hinz, A. Suratha - I. *PAC* **80**[9], 2025-2040 (2008). 16 pp.
21. PAC-REP- 08-01-12.. Protocols on Safety, Efficacy, Standardization and Documentation of Herbal Medicine. M. Mosihuzzaman, M. I. Choudhary - III. Received 2008-01-16. *PAC* **80**[10], 2195-2230 (2008) . 36 pp.
22. PAC-REP-08-04-02. Immunological Effects of Mercury. M. Schwenk, R. Klein, D. M. Templeton – VI. *PAC* **81**[1], 153-167 (2009). 15 pp.
23. PAC-REP-08-05-01. Teaching High-temperature Materials Chemistry at University. G. Balducci, A. Ciccioi, G. de Maria, F. Hoda, G. M. Rosenblatt - II. *PAC* **81**[2], 299-338 (2009). 40 pp.

24. PAC-REP-08-07-22. Guidelines for Rheological Characterization of Polyamide Melts. D. J. Dijkstra – IV. *PAC* **81**[2], 339-349 (2009). 11 pp.
25. PAC-REP-08-06-05. The Use of Countercurrent Chromatography in Analytical Chemistry. A. Berthod, T. Mryutina, B. Spivakov, O. Shpigun, I. A. Sutherland – IV. *PAC* **81**[2], 355-387 (2009). 34 pp.
26. PAC-REP-08-09-21. Thermodynamic and Thermophysical Properties of the Reference Ionic Liquid 1-hexyl-3-methylimidazolium bis(trifluoromethyl)sulfonylamide. Part 1. Experimental Methods and Results. K. N. Marsh, J. F. Brennecke, R. D. Chirico, M. Frenkel, A. Heintz, J. W. Magee, C. J. Peters, L. P. N. Rebelo, K. R. Seddon – I. *PAC* **81**[5], 781-790 (2009). 10 pp.
27. PAC-REP-08-09-22. Thermodynamic and Thermophysical Properties of the Reference Ionic Liquid 1-hexyl-3-methylimidazolium bis(trifluoromethyl)sulfonylamide. Part 2. Critical Evaluation and Recommended property values. R. D. Chirico, V. Diky, J. W. Magee, M. Frenkel, K. N. Marsh – I. *PAC* **81**[5], 791-828 (2009). 38 pp.

2.2 Publications reviewed and approved by ICTNS for publication elsewhere than in PAC (Editing by respective organization)

Total number: 6

28. PAC-REC-04-04-03. IUPAC Recommendations 2005. *Nomenclature of Inorganic Chemistry* (the “Red Book”). Prepared for publication by N. G. Connelly, T. Damhus, R. M. Hartshorn. RSCPublishing, Cambridge, UK (2005).
29. PAC-REC-05-11-10. IUPAC Physical Chemistry Division. *Quantities, Units and Symbols in Physical Chemistry*. 3rd ed. (the “Green Book”). Prepared for publication by E. R. Cohen, T. Cvitaš, J. G. Frey, B. Holmström, K. Kuchitsu, R. Marquardt, I. Mills, F. Pavese, M. Quack, J. Stohner, H. L. Strauss, M. Takami, A. J. Thor. RSC Publishing, Cambridge, UK (2007).
30. PAC-REC-04-05-02 *International Vocabulary of Metrology*, 3rd ed. (VIM3) BIPM/JCGM (2008). Accepted on behalf of IUPAC 2006-10-16. Available on BIPM web site: www.bipm.org/en/publications/guides/vim.html
31. PAC-REC-04-05-03 *Evaluation of Measurement Data - Supplement 1 to the Guide to the Expression of Uncertainty in Measurement (GUM). Propagation of Distributions Using a Monte Carlo Method*. BIPM/JCGM 100: (2008). Accepted on behalf of IUPAC 2007-04-26. www.bipm.org/en/publications/guides/gum.html
32. PAC-REC-07-08-26. *Evaluation of Measurement Data. An Introduction to the “Guide to the Expression of Uncertainty in Measurement” and Related Documents*. BIPM/JCGM (2008). Accepted on behalf of IUPAC 2007-11-05.
33. PAC-REC-05-10-23. IUPAC Recommendations 2008. *Compendium of Polymer Terminology and Nomenclature* (the “Purple Book”). Prepared for publication by R. G. Jones, J. Kahovec, R. Stepto, E. S. Wilks, M. Hess, T. Kitayama, W. V. Metanowski, with advice from A. Jenkins and P. Kratochvil, RSCPublishing, Cambridge, UK (2008).

Report of the Project Committee to Council, 2009

This report covers the period January 2008 to May 2009.

The Project Committee (PC) has responsibility for funding allocations within two programs:

Projects

The PC evaluates applications for funding of projects that are inter-divisional, projects that are too large to be fully-funded by a Division Committee or Standing Committee (say more than 10% of the DC or SC budget), and projects supported by a Standing Committee that has no budget. The biennial budget is \$110,000 as set aside in the **Project Reserve (PR)**. Project applications are processed as received.

Commencing in this biennium, the PC can also recommend project funding, or partial funding, from the **Strategic Opportunities Fund (SOF)**, as appropriate. The SOF commenced the biennium around \$190,000; the amount is variable as this fund receives unspent monies from completed projects. Commitments from the SOF are recommended when the proposed project activity has strategic importance to IUPAC as a whole. Depending on the project objectives and strategic components a Project may be funded from the PR, the SOF, or a combination of the two.

Financial Support for Conferences.

The PC reviews applications for financial support for *Conferences in Scientifically Emerging Regions* and for *Conferences in New Directions in Chemistry*. The biennial budget is \$65,000. Applications are processed as received but must be made at least 12 months ahead of the conference.

Projects

To date in this biennium the PC has reviewed and approved 16 projects that sought funding from the Project Reserve. Commitments to date in this biennium total \$101,320; these have been complemented by supporting commitments of \$23,000 from the Strategic Opportunities Fund and \$38,725 from external sources. Three of the Standing Committees and five of the eight Divisions have been beneficiaries of these IUPAC funds which complemented total SC/Division commitments of \$59,500 (a factor of 2.7:1). Details of Project funding are given in **Appendix 1**. In addition 3 projects have been fully funded from the SOF (**Appendix 2**).

Characteristics of projects that receive partial or total funding from the SOF include promotion of key IUPAC “products” and servicing the needs of their users (e.g. InChI; two projects), strategic value to IUPAC and/or the scientific community as a whole (e.g. the total funding of meetings of the IUPAC Management Committee for the International Year of Chemistry program; a substantial contribution to support IUPAC engagement (through COCI, CHEMRAWN, Division VII) with the SAICM secretariat (Strategic Approach to International Chemicals Management)).

The average review time for project funding applications is 4 months (range 1 month to 10 months). This time could be considerably shorter, and the PC is working with Division Presidents to expedite the review and funding process. For all applications the review process starts immediately the proposal is received by the secretariat. However, delays do arise and are most commonly associated with inadequate attention to detail in the application (level and detail of proposed budget; dissemination of outputs that adequately communicates with stakeholders; how retrospective evaluation of outputs might be accomplished; relevance of proposal to other Divisions and Standing Committees). In these cases the review process is paused while the application is returned to the lead Division/SC for attention.

Funded Scientific Conferences.

In the current biennium these two programs have been under-utilized by the Divisions and Standing Committees. This represents a “missed opportunity”. There have been only four applications, with two being funded (one FSC-NDC and one FSC-SER, a total of \$12,000); one application was declined (FSC-SER) on the basis of ineligibility of the venue as a “scientifically emerging region”, and the other (FSC-NDC) on the basis of being a continuing conference series. In contrast, in the previous biennium a total of 11 conferences were supported financially by IUPAC. See Appendix 3.

The Committee is aware of the need to further promote the FSC programs and it is actively discussing this opportunity with Division Presidents. The FSC-SER program is not only of value to the recipients and the host country, it is also of value to IUPAC as a means of engaging with communities and countries not normally connected with, or informed about, IUPAC activities. The success of this program depends on Divisions/SCs identifying opportunities well in advance, taking the initiative and promoting applications for funding. The FSC-NDC program offers a Division/SC an opportunity to support a symposium or workshop at a conference in which new frontiers or interdisciplinary approaches to existing fields of research can be explored. Such exploration can be of benefit in identifying potential new projects and project partners.

Kip Powell,

Chair

Appendix 1

Projects supported from the Project Reserve

Key: **SOF** (SOF funding); **PR** (Project Reserve funding); **Div/SC** (commitment from Division or Standing Committee funds); **Ext** (external funding from stakeholder)

| | | \$ requested | Granted | |
|---|-------------------|--------------|-------------|---------------------|
| Extension of ThermoML - the IUPAC Standard for Thermodynamic Data Communications | | | | |
| 2007-039-1-024 | Michael Frenkel | | | |
| Date Approved | | \$10,000.00 | \$8,000.00 | PR |
| 23-Jan-08 | | | \$2,000.00 | Div |
| Preparation for the Translation of the Green Book | | | | |
| 2008-007-3-100 | Roberto Marquardt | | | |
| Date Approved | | \$15,000.00 | \$9,000.00 | PR |
| 07-Jul-08 | | | \$6,000.00 | Div |
| Development of an isotopic periodic table for the educational community | | | | |
| 2007-038-3-200 | Norman E. Holden | | | |
| Date Approved | | \$11,000.00 | \$9,000.00 | PR |
| 15-Apr-08 | | | \$1,000.00 | Div |
| | | | \$1,000.00 | Ext CCE |
| Crop Protection Chemistry in Latin America: Environment, Safety, and Regulation - 3rd International Workshop on | | | | |
| 2007-057-1-600 | Irene Alleluia | | | |
| Date Approved | | \$9,000.00 | \$4,500.00 | PR |
| 23-Jun-08 | | | \$4,500.00 | Div |
| | | | \$29,975.00 | Ext CropLife |
| Climate and Global Change: observed impacts on planet earth | | | | |
| 2007-050-2-600 | Trevor Letcher | | | |
| Date Approved | | \$6,000.00 | \$2,000.00 | PR |
| 19-Feb-08 | | | \$3,000.00 | Div |
| | | | \$1,000.00 | Ext Div I |
| Update of glossary of terms used in medicinal chemistry | | | | |
| 2008-010-1-700 | Derek R. Buckle | | | |
| Date Approved | | \$5,500.00 | \$1,500.00 | PR |
| 06-Jun-08 | | | \$1,500.00 | Div |
| | | | \$2,500.00 | Ext ACS |
| Revision of the "Silver Book" : Compendium of Terminology and Nomenclature of Properties in Clinical Laboratory Sciences | | | | |
| 2007-033-3-700 | Georges Féraud | | | |
| Date Approved | | \$18,000.00 | \$6,000.00 | PR |
| 07-Jul-08 | | | \$3,000.00 | Div |
| Chemical Industries & IUPAC 2 | | | | |
| 2008-038-1-022 | Akira Ishitani | | | |
| Date Approved | | \$16,500.00 | \$3,500.00 | SOF |
| 24-Feb-09 | | | \$5,000.00 | PR |
| | | | \$8,000.00 | Div |

Visualizing and understanding the science of climate change

2008-043-1-050 Peter Mahaffy

| | | | |
|----------------------|------------|------------|------------|
| Date Approved | \$8,400.00 | \$5,400.00 | PR |
| 19-Feb-09 | | \$3,000.00 | Div |

Regional Drinking Water Quality Assessment in the Near East (Palestinian Authority, Jordan, and Israel) – An Overview and Perspective

2008-003-3-600 Yehuda Shevah

| | | | |
|----------------------|-------------|-------------|------------|
| Date Approved | \$15,000.00 | \$10,000.00 | PR |
| 16-Feb-09 | | \$5,000.00 | Div |

IUPAC International Chemical Identifier (InChI): Further Development

2008-034-1-800 Alan McNaught

| | | | |
|----------------------|-------------|-------------|------------|
| Date Approved | \$30,000.00 | \$6,000.00 | SOF |
| 10-Feb-09 | | \$16,000.00 | PC |
| | | \$8,000.00 | Div |

InChI and InChIKey: further promotion and advice to publishers, database providers and software developers on integration of IUPAC identifiers into all stages of chemoinformatics data processing

2008-033-1-800 Alan McNaught

| | | | |
|----------------------|-------------|------------|------------|
| Date Approved | \$10,000.00 | \$3,500.00 | SOF |
| 10-Feb-09 | | \$3,500.00 | PR |
| | | \$1,500.00 | Div |

Critical evaluation of thermodynamic properties of hydrogen storage materials: metal organic frameworks and metal or complex hydrides.

2008-006-3-100 Li-Xian Sun

| | | | |
|----------------------|-------------|------------|-------------------------|
| Date Approved | \$20,000.00 | \$8,000.00 | PR |
| 13-March-09 | | \$5,000.00 | Div |
| | | \$2,000.00 | Ext Divs II, III |

IUPAC Support to SAICM Implementation

2009-003-2-020 Colin Humphris

| | | | |
|----------------------|-------------|------------|----------------|
| Date Approved | \$16,900.00 | \$8,000.00 | SOF |
| 9-April-09 | | \$4,000.00 | PR |
| | | \$2,500.00 | SC COCI |
| | | \$2,500.00 | Ext |

IUPAC – UNESCO - UNIDO Safety Training Programme (STP), Glasgow.

2009-001-2-022 Mark Cesa

| | | | |
|----------------------|-------------|------------|----------------|
| Date Approved | \$12,750.00 | \$5,500.00 | PR |
| 13-May-09 | | \$5,000.00 | SC COCI |
| | | \$2,250.00 | Ext RSC |

Recommended values for the viscosity and density of molten copper and tin.

2008-045-1-100 Marc Assael

| | | | |
|----------------------|------------|------------|------------|
| Date Approved | \$9,000.00 | \$4,000.00 | PR |
| 12-May-09 | | \$5,000.00 | Div |

TOTAL SUM in USD

| | | |
|---------------------|---------------------|------------|
| \$213,050.00 | \$21,000.00 | SOF |
| | \$101,400.00 | PR |
| | \$59,500.00 | Div |
| | \$41,225 | Ext |

Appendix 2**Projects supported from the Strategic Opportunities Fund**

| | | \$ Requested | Granted |
|--|-----------------|---------------------|--------------------|
| International Year of Chemistry 2011 - Management Committee Meetings | | | |
| 2008-021-1-020 | John Malin | | |
| Date Approved | | \$30,000.00 | \$30,000.00 |
| 28-Jul-08 | | | |
| Frontiers of chemical sciences: research and education in middle eastern countries (Malta IV) | | | |
| 2008-044-1-020 | Zafra M. Lerman | | |
| Date Approved | | \$10,000.00 | \$10,000.00 |
| 17-Dec-08 | | | |
| Priority claims for the discovery of elements with atomic number greater than 111 | | | |
| 2008-009-1-200 | Paul Karol | | |
| Date Approved | | \$10,200.00 | \$10,200.00 |
| 28-Feb-08 | | | |
| TOTAL SUM in USD | | | \$50,200.00 |

Appendix 3**Financially Supported Conferences(FSC) Program****Scientifically Emerging Regions (FSC-SER)**

| | | \$ Requested | Granted |
|--|--|---------------------|--------------------|
| 10th International Conference on Frontiers of Polymers and Advanced Materials, Santiago, Chile | | | |
| Date Approved | | \$6,000.00 | \$6,000.00 |
| 16-Dec-08 | | | |
| New Directions in Chemistry | | | |
| International Symposium of Molecular Environmental Soil Science at the Interfaces at the Earth's Critical Zone, Hangzhou, China. October 10-14, 2009. | | | |
| Date Approved | | \$6,000.00 | \$6,000.00 |
| 7-Oct-08 | | | |
| TOTAL SUM in USD | | | \$12,000.00 |

MEMORANDUM**29 May 2009****To: Professor Jung-II Jin, President IUPAC****From: Ron Weir, Chair, Evaluation Committee****EVALUATION COMMITTEE REPORT TO IUPAC COUNCIL: GLASGOW**

- 1. The Evaluation Committee, hereafter EvC, has finished its assessment of completed IUPAC projects our report for the IUPAC Council follows. Extensive consultation and searching have been carried out to provide an exhaustive background on which to base the statistics from which conclusions may be drawn. These background documents include hundreds of journal references, the IUPAC colour books (Red for Inorganic, Blue for Organic, Gold for Chemical Terminology, Purple for Macromolecules, Orange for Analytical, White for Biochemical, Silver for Clinical Laboratory Science, Green for Units and Symbols), hits on the IUPAC WEB site for the specific project, as well as consultation with Task Group Chairs. Dr. Jost and his staff have been most helpful.**
- 2. Our evaluation has been confined to the 20 completed reports tabled at the Bureau and Council meetings in Torino (summer 2007) and confirmed for study at the Istanbul Bureau meeting (Mar 2008). These 20 represent a convenient, although arbitrary, window on the project system. The EvC has assessed the 20 projects against the IUPAC Strategic Plan and conclude that *all meet the criteria set out in the Strategic Plan, a result that verifies the process by which these projects were approved at the outset.***
- 3. The work by the EvC has led to the following observations: (a). the use of citations alone is an accurate measure of impact for some projects, but not for some other projects; (b) the use of hits on the IUPAC web site is a helpful measure for some projects; (c). low profile projects characterised by a lack of citations may have high value via (i) their impact on nomenclature, terminology, units, as these documents are used throughout university instruction, scientific journal standards, often translated into other languages, and some have CD ROMs issued for sale, (ii) their impact on the scientific development of young scientists; (d) there is anecdotal information on the positive value of the conferences (projects), but quantitative data are lacking.**
- 4. From the point of the view of the Evaluation Committee, the modest IUPAC investment in these 20 projects has been worthwhile and represents success of the project system as the goals of every project have been met. The Evaluation Committee considers that IUPAC has received excellent value in return for the funds invested in these projects.**

5. Among the continuing lessons learned by the EvC as a result of this detailed study is the lack of specific information about the conferences on file. In 2008, the EvC asked the Secretariat to start gathering statistics to help assess sponsorship of conferences by IUPAC and Fabienne Meyers has started this task. Among the statistics suggested are the number of attendees, papers published, special issues of journals *etc.*

Ron D. Weir
Chair, Evaluation Committee

cc: Dr. Fabienne Meyers fabienne@iupac.org

Members of the Evaluation Committee

Dr. Mark Cesa <Mark.Cesa@innovene.com>

Dr. Srinivasan Chandrasekaran scn@orgchem.iisc.ernet.in

Dr. John Jost <secretariat@iupac.org>

Dr. Gerard Moss <g.p.moss@qmul.ac.uk>

Dr. Stanislaus Penczek <spenczek@bilbo.cbmm.lodz.pl>

Item 15.1 Biennial Report of Treasurer

The past year in particular has been a very difficult period financially. The good news is that despite the severe depression that has been experienced worldwide the Union has managed to maintain its income level and in this way the pace and scope of its activities. Our income comprises principally national subscriptions, the proceeds of our publications and income from our investments and all of these streams have produced the anticipated returns. Particularly pleasing was the fact that the income from *Pure and Applied Chemistry*, despite a small decrease in the number of subscribers, has again maintained its overall net income. We are again very grateful to our National Adhering organisations for their continued financial and other support. Some seventy per cent of our investments are in bonds and so the income from these was also maintained at their designated values but with unrealised losses occurring in the value of our equity portfolio as is discussed in Section 15.2 below.

The project system has now bedded in well and is, for the most part, being operated effectively by the Divisions and Standing Committees. Some Divisions have had difficulties in remaining within the guidelines that sets a 30:70 percentage split between operational and project expenditure though, in most instances, this could be redressed by forward planning to effect a better usage of the project system. The return of funds recovered from completed and abandoned projects to the Strategic Opportunities Fund (SOF) has provided an additional and very valuable resource for strategically important and larger projects and has grown in excess of US\$150 000.

In terms of expenditure the costs in 2007 are larger than those in 2008 because of the travel and subsistence associated with the General Assembly.

Summary and conclusions

Whereas our conservative and prudent investment policy has allowed us to maintain our momentum and work programmes we have clearly not escaped unscathed from the general global downturn. Although it is not the function of the Union to accumulate funds *per se* it is essential that we continue to have sufficient funding available to allow us to continue and increase our work programmes through the Project System and also to pursue any opportunities that may arise. In this respect the upcoming International Year of Chemistry in 2011 represents both a major challenge but also a unique strategic opportunity to raise our income and our profile. The Union must continue to seek to diversify and increase its income streams

Acknowledgements

I am grateful to my fellow officers for their support and inputs and also to the Executive Director and all the staff of the Secretariat for their invaluable assistance and cooperation in the administration of the system.

Item 15.2 Report of Finance Committee

The Finance Committee met in February in Zurich and reviewed all financial aspects of our operation including analysis of the current and of future budgets. The budget for 2010/11 which emerged from its discussions is before Council for approval following its endorsement by the Executive Committee and Bureau.

That fraction of our investment portfolio which is in bonds is used, in so far as is possible, to generate a constant stream of income. So when a bond matures the proceeds of its sale are used to purchase a new bond which slots into the income 'ladder'. The market turmoil of the past year has inevitably had an effect on the value of IUPAC's investment portfolio. The table below summarizes the recent value of the portfolio.

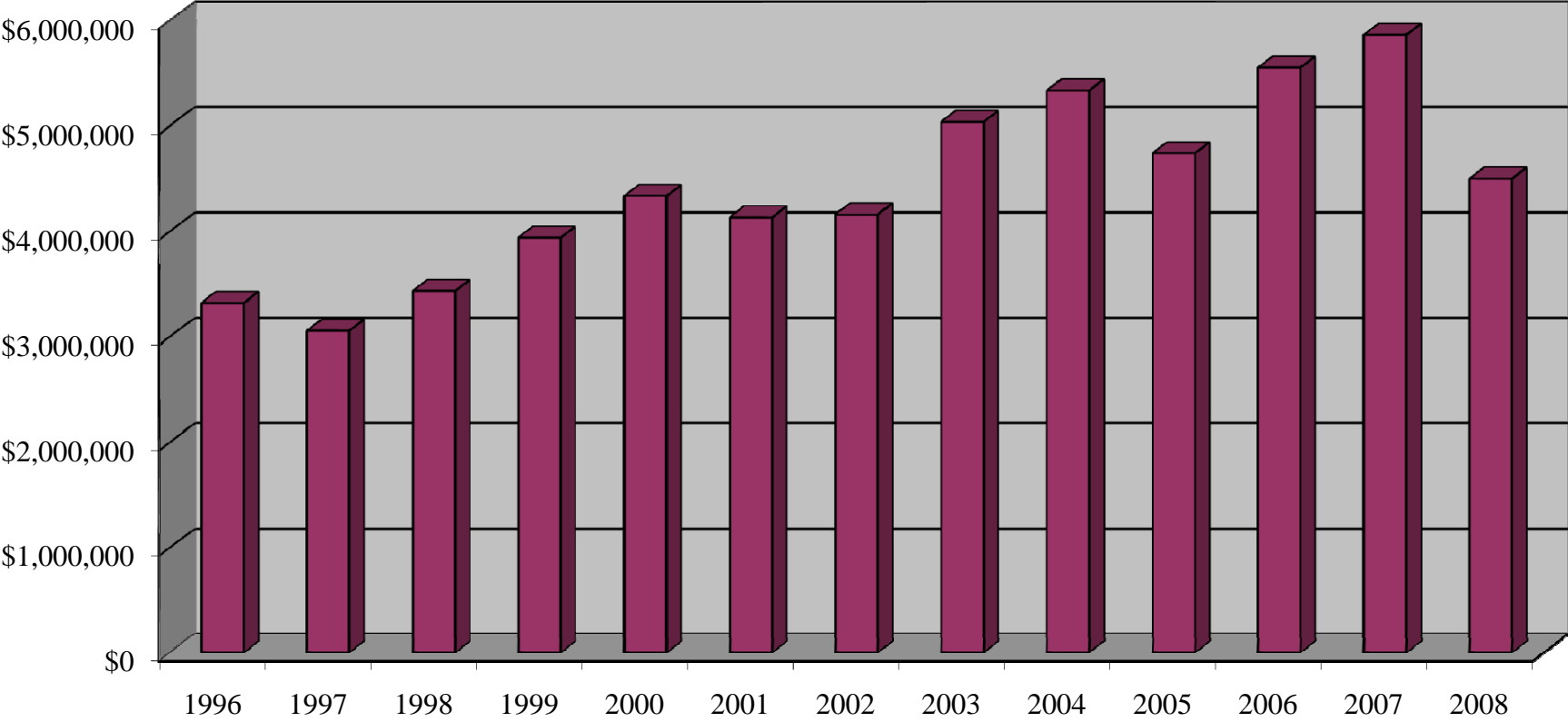
Portfolio Value Summary

| Date | USD | EUR (in USD) | Total | Change from previous |
|-----------|-----------|--------------|-----------|----------------------|
| 31-Dec-06 | 3,991,233 | 1,559,961 | 5,551,193 | |
| 31-Dec-07 | 4,192,852 | 1,668,575 | 5,861,427 | 310,234 |
| 31-Dec-08 | 2,969,792 | 1,531,446 | 4,501,238 | (1,360,190) |
| 30-Jun-09 | 3,297,096 | 1,604,018 | 4,901,114 | 399,876 |

The loss in value of the portfolio from its maximum value through 30 June of this year is 16 %. This relatively good result is a tribute to the conservative investment policy followed by the Finance Committee for the past two years. The Committee this year extensively discussed the current economic situation and its effects on our investments. It was decided to ascertain the nature of the investments underlying the Union's mutual funds and in particular, to seek to avoid structured assets, derivatives and hedge funds. This information has been obtained from Wachovia and the portfolio is being reviewed with a view to the possible sale of some of the funds that have shown large losses. Given the changed circumstances on the world financial markets it may also be necessary to review our Investment Policy Statement.

The term of one member of the Finance Committee, Dr. Schutt, expires at the end of 2009, he is eligible for a second four-year term. The Committee agreed to submit Dr. Schutt's name for a second term to the President of IUPAC.

Portfolio Value



**INTERNATIONAL UNION OF
PURE AND APPLIED CHEMISTRY**

Financial Statements

December 31, 2007 and 2006

(With Independent Auditors' Report Thereon)

BATCHELOR, TILLERY & ROBERTS, LLP

CERTIFIED PUBLIC ACCOUNTANTS

POST OFFICE BOX 18068

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Independent Auditors' Report

The Executive Committee
International Union of Pure and Applied Chemistry:

We have audited the accompanying statements of financial position of the International Union of Pure and Applied Chemistry ("IUPAC") as of December 31, 2007 and 2006, and the related statements of activities, cash flows, and functional expenses for the years then ended. These financial statements are the responsibility of IUPAC's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of IUPAC's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of IUPAC as of December 31, 2007 and 2006, and the changes in its net assets and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Batchelor, Tillery & Roberts, LLP

June 11, 2008

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Financial Position

December 31, 2007 and 2006

| <u>Assets</u> | <u>2007</u> | <u>2006</u> |
|---|---------------------|------------------|
| Current assets: | | |
| Cash and cash equivalents | \$ 768,224 | 808,140 |
| Subscriptions receivable (net of allowance for doubtful accounts of \$74,100 in 2007 and \$56,300 in 2006) | 67,350 | 88,558 |
| Inventories | 12,373 | 7,632 |
| Prepaid expenses and other assets | <u>5,572</u> | <u>12,647</u> |
| Total current assets | 853,519 | 916,977 |
| Furniture, fixtures, and equipment, net | 24,130 | 17,406 |
| Investments, at market value | <u>5,861,427</u> | <u>5,551,193</u> |
| | <u>\$ 6,739,076</u> | <u>6,485,576</u> |
| <u>Liabilities and Net Assets</u> | | |
| Current liabilities: | | |
| Accounts payable and accrued expenses | 41,010 | 47,803 |
| Unearned subscriptions | <u>815,316</u> | <u>632,759</u> |
| Total current liabilities | <u>856,326</u> | <u>680,562</u> |
| Commitments | | |
| Net assets: | | |
| Unrestricted | 5,613,367 | 5,581,926 |
| Temporarily restricted | 77,026 | 30,731 |
| Permanently restricted | <u>192,357</u> | <u>192,357</u> |
| Total net assets | <u>5,882,750</u> | <u>5,805,014</u> |
| | <u>\$ 6,739,076</u> | <u>6,485,576</u> |

See accompanying notes to financial statements.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Activities

Year ended December 31, 2007, with comparative totals for 2006

| | 2007 | | | Total | 2006 |
|--|---------------------|-----------------------------------|-----------------------------------|------------------|------------------|
| | <u>Unrestricted</u> | <u>Temporarily restricted</u> | <u>Permanently restricted</u> | | |
| Support: | | | | | |
| Grants and contributions | \$ 135,493 | 100,000 | - | 235,493 | 63,435 |
| National subscriptions and service charges | 730,596 | - | - | 730,596 | 730,032 |
| Affiliate membership program | <u>75,117</u> | <u>-</u> | <u>-</u> | <u>75,117</u> | <u>90,961</u> |
| Total support | 941,206 | 100,000 | - | 1,041,206 | 884,428 |
| Net assets released from restrictions | <u>64,417</u> | <u>(64,417)</u> | <u>-</u> | <u>-</u> | <u>-</u> |
| Total support and net assets released from restrictions | <u>1,005,623</u> | <u>35,583</u> | <u>-</u> | <u>1,041,206</u> | <u>884,428</u> |
| Other revenue: | | | | | |
| Publications | 820,431 | - | - | 820,431 | 826,490 |
| Investment income, net | <u>587,059</u> | <u>10,712</u> | <u>-</u> | <u>597,771</u> | <u>632,345</u> |
| Total other revenue | <u>1,407,490</u> | <u>10,712</u> | <u>-</u> | <u>1,418,202</u> | <u>1,458,835</u> |
| Total support and other revenue | <u>2,413,113</u> | <u>46,295</u> | <u>-</u> | <u>2,459,408</u> | <u>2,343,263</u> |
| Expenses: | | | | | |
| Program and publications | 1,685,479 | - | - | 1,685,479 | 1,059,579 |
| Management and general | <u>696,193</u> | <u>-</u> | <u>-</u> | <u>696,193</u> | <u>766,734</u> |
| Total expenses | <u>2,381,672</u> | <u>-</u> | <u>-</u> | <u>2,381,672</u> | <u>1,826,313</u> |
| Increase in net assets | 31,441 | 46,295 | - | 77,736 | 516,950 |
| Net assets, beginning of year | <u>5,581,926</u> | <u>30,731</u> | <u>192,357</u> | <u>5,805,014</u> | <u>5,288,064</u> |
| Net assets, end of year | \$ <u>5,613,367</u> | <u>77,026</u> | <u>192,357</u> | <u>5,882,750</u> | <u>5,805,014</u> |

(Continued)

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Activities, Continued

Year ended December 31, 2006

| | <u>Unrestricted</u> | <u>Temporarily restricted</u> | <u>Permanently restricted</u> | <u>Total</u> |
|--|---------------------|-----------------------------------|-----------------------------------|------------------|
| Support: | | | | |
| Grants and contributions | \$ 18,935 | 19,500 | 25,000 | 63,435 |
| National subscriptions and service charges | 730,032 | - | - | 730,032 |
| Affiliate membership program | <u>90,961</u> | <u>-</u> | <u>-</u> | <u>90,961</u> |
| Total support | 839,928 | 19,500 | 25,000 | 884,428 |
| Net assets released from restrictions | <u>26,484</u> | <u>(14,484)</u> | <u>(12,000)</u> | <u>-</u> |
| Total support and net assets released from restrictions | <u>866,412</u> | <u>5,016</u> | <u>13,000</u> | <u>884,428</u> |
| Other revenue: | | | | |
| Publications | 826,490 | - | - | 826,490 |
| Investment income, net | <u>620,018</u> | <u>12,327</u> | <u>-</u> | <u>632,345</u> |
| Total other revenue | <u>1,446,508</u> | <u>12,327</u> | <u>-</u> | <u>1,458,835</u> |
| Total support and other revenue | <u>2,312,920</u> | <u>17,343</u> | <u>13,000</u> | <u>2,343,263</u> |
| Expenses: | | | | |
| Program and publications | 1,059,579 | - | - | 1,059,579 |
| Management and general | <u>766,734</u> | <u>-</u> | <u>-</u> | <u>766,734</u> |
| Total expenses | <u>1,826,313</u> | <u>-</u> | <u>-</u> | <u>1,826,313</u> |
| Increase in net assets | 486,607 | 17,343 | 13,000 | 516,950 |
| Net assets, beginning of year | <u>5,095,319</u> | <u>13,388</u> | <u>179,357</u> | <u>5,288,064</u> |
| Net assets, end of year | \$ <u>5,581,926</u> | <u>30,731</u> | <u>192,357</u> | <u>5,805,014</u> |

See accompanying notes to financial statements.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Cash Flows

Years ended December 31, 2007 and 2006

| | <u>2007</u> | <u>2006</u> |
|---|-------------------|--------------------|
| Cash flows from operating activities: | | |
| Increase in net assets | \$ 77,736 | 516,950 |
| Adjustments to reconcile increase in net assets to net cash provided by operating activities: | | |
| Depreciation and amortization | 6,330 | 9,020 |
| Bad debt expense | 17,797 | 8,358 |
| Realized gains on investments | (19,107) | (877,513) |
| Unrealized (gains) losses on investments | (154,882) | 484,553 |
| Changes in operating assets and liabilities: | | |
| Subscriptions receivable | 3,411 | (7,578) |
| Inventories | (4,741) | (417) |
| Prepaid expenses and other assets | 7,075 | 9,633 |
| Accounts payable and accrued expenses | (6,793) | 10,504 |
| Unearned subscriptions | <u>182,557</u> | <u>242,513</u> |
| Net cash provided by operating activities | <u>109,383</u> | <u>396,023</u> |
| Cash flows from investing activities: | | |
| Purchases of furniture, fixtures and equipment | (13,054) | (2,384) |
| Proceeds from sales of investments | 144,992 | 2,376,032 |
| Purchases of investments | <u>(281,237)</u> | <u>(2,793,437)</u> |
| Net cash used in investing activities | <u>(149,299)</u> | <u>(419,789)</u> |
| Net decrease in cash and cash equivalents | (39,916) | (23,766) |
| Cash and cash equivalents, beginning of year | <u>808,140</u> | <u>831,906</u> |
| Cash and cash equivalents, end of year | \$ <u>768,224</u> | <u>808,140</u> |

See accompanying notes to financial statements.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Functional Expenses

Year ended December 31, 2007, with comparative totals for 2006

| | 2007 | | | <u>2006</u> |
|----------------------------------|-------------------------------------|-----------------------------------|------------------|------------------|
| | <u>Program and publications</u> | <u>Management and general</u> | <u>Total</u> | |
| Administrative and project costs | \$ 298,603 | 16,137 | 314,740 | 89,573 |
| Audit and accounting | - | 29,804 | 29,804 | 33,614 |
| Bad debts | - | 17,797 | 17,797 | 8,358 |
| Building operations | - | 23,370 | 23,370 | 17,775 |
| Contracted services | 469,195 | 7,594 | 476,789 | 425,776 |
| Contributions | 35,134 | - | 35,134 | 25,499 |
| Depreciation and amortization | - | 6,330 | 6,330 | 9,020 |
| Insurance | - | 2,960 | 2,960 | 2,647 |
| Maintenance | - | 1,364 | 1,364 | 1,422 |
| Office supplies and expenses | - | 38,810 | 38,810 | 25,913 |
| Payroll taxes and benefits | - | 68,817 | 68,817 | 71,054 |
| Postage | 66,294 | 14,087 | 80,381 | 102,337 |
| Printing and publications | 4,788 | 10,756 | 15,544 | 70,125 |
| Prizes and awards | 19,520 | - | 19,520 | 1,414 |
| Salaries | - | 343,398 | 343,398 | 353,863 |
| Travel and subsistence | 791,945 | 97,608 | 889,553 | 567,019 |
| Utilities | - | 17,044 | 17,044 | 19,876 |
| Miscellaneous | - | 317 | 317 | 1,028 |
| | <u>\$ 1,685,479</u> | <u>696,193</u> | <u>2,381,672</u> | <u>1,826,313</u> |

(Continued)

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Functional Expenses, Continued

Year ended December 31, 2006

| | Program and <u>publications</u> | Management <u>and general</u> | <u>Total</u> |
|----------------------------------|------------------------------------|----------------------------------|------------------|
| Administrative and project costs | \$ 72,421 | 17,152 | 89,573 |
| Audit and accounting | - | 33,614 | 33,614 |
| Bad debts | - | 8,358 | 8,358 |
| Building operations | - | 17,775 | 17,775 |
| Contracted services | 387,238 | 38,538 | 425,776 |
| Contributions | 25,499 | - | 25,499 |
| Depreciation and amortization | - | 9,020 | 9,020 |
| Insurance | - | 2,647 | 2,647 |
| Maintenance | - | 1,422 | 1,422 |
| Office supplies and expenses | - | 25,913 | 25,913 |
| Payroll taxes and benefits | - | 71,054 | 71,054 |
| Postage | 88,151 | 14,186 | 102,337 |
| Printing and publications | 47,135 | 22,990 | 70,125 |
| Prizes and awards | 1,414 | - | 1,414 |
| Salaries | - | 353,863 | 353,863 |
| Travel and subsistence | 437,721 | 129,298 | 567,019 |
| Utilities | - | 19,876 | 19,876 |
| Miscellaneous | - | 1,028 | 1,028 |
| | \$ <u>1,059,579</u> | <u>766,734</u> | <u>1,826,313</u> |

See accompanying notes to financial statements.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements

December 31, 2007 and 2006

(1) Nature of Organization and Significant Accounting Policies

The International Union of Pure and Applied Chemistry (IUPAC), founded in 1919, is a voluntary nongovernmental, nonprofit association of fifty-one national adhering organizations representing the chemists of their countries. Additionally, there are seventeen associate national adhering organizations, thirty-one associated organizations, and eighty-six company associates.

The objectives of IUPAC are to promote continuing cooperation among the chemists of the member countries, to study topics of international importance to pure and applied chemistry which need standardization or codification, to cooperate with other international organizations which deal with topics of a chemical nature, and to contribute to the advancement of pure and applied chemistry in all its aspects.

The significant accounting policies of IUPAC are as follows:

Support, Revenues, and Expenses

IUPAC derives its revenues primarily from national subscriptions, publication income, and investment income. Support, revenues, and expenses are recorded on the accrual basis of accounting, and revenue received for future subscriptions is deferred until the applicable year.

Contributions received are measured at their fair values and are reported as an increase in net assets. IUPAC reports contributions of cash and other assets as restricted support if they are received with donor stipulations that limit the use of the donated assets or if they are designated as support for future periods. When a donor restriction expires, that is, when a stipulated time restriction ends or purpose restriction is accomplished, temporarily restricted net assets are reclassified to unrestricted net assets and reported in the statement of activities as net assets released from restrictions. Donor restricted contributions whose restrictions are met in the same reporting period are reported as unrestricted support.

Cash and Cash Equivalents

Cash and cash equivalents include commercial checking and money market accounts. At year-end and throughout the year, IUPAC had on deposit with a financial institution amounts in excess of FDIC insurance limits of \$100,000. IUPAC has not experienced any losses in such accounts and believes it is not exposed to any significant credit risk on cash and cash equivalents.

Allowance for Doubtful Accounts

An allowance is provided for uncollectible receivables equal to the losses that are estimated to be incurred in the collection of all receivables. The allowance is based on historical collection experience combined with a review of the current status of the existing receivables.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2007 and 2006

(1) Nature of Organization and Significant Accounting Policies, Continued

Inventories

Inventories, consisting of various publications, are stated at the lower of cost or market, with cost determined on the weighted-average method.

Investments

Investments in marketable securities are stated at fair market value. Investment income (including gains and losses on investments, interest, and dividends) is included in the statement of activities as a change in unrestricted net assets, except for earnings on permanently restricted net assets which are reported as temporarily restricted.

Furniture, Fixtures, and Equipment

Furniture, fixtures, and equipment are recorded at cost. Depreciation is provided over the estimated useful lives of the assets using the straight-line method.

Income Taxes

IUPAC is exempt from federal and state income taxes under Section 501(c)(3) of the Internal Revenue Code and applicable state statutes.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Accordingly, actual results could differ from those estimates.

Reclassifications

Certain 2006 amounts have been reclassified to conform to the 2007 presentation. These reclassifications had no impact on total net assets or total increase in net assets as previously reported.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2007 and 2006

(2) Furniture, Fixtures, and Equipment

Furniture, fixtures, and equipment consist of the following:

| | <u>2007</u> | <u>2006</u> |
|--|------------------|------------------|
| Equipment | \$ 61,215 | 54,828 |
| Furniture and fixtures | 48,877 | 48,877 |
| Leasehold improvements | <u>16,097</u> | <u>16,097</u> |
| | 126,189 | 119,802 |
| Less accumulated depreciation and amortization | <u>(102,059)</u> | <u>(102,396)</u> |
| | <u>\$ 24,130</u> | <u>17,406</u> |

(3) Investments

IUPAC's investments are held by Wachovia Securities. The following table presents the fair market value of those investments (no individual investment represents five percent or more of net assets):

| | <u>2007</u> | | <u>2006</u> |
|---|---------------------------------|-----------------------|-----------------------|
| | <u>Number of shares/par</u> | <u>Fair value</u> | <u>Fair value</u> |
| Preferred fixed rate cap security (5.88%), matures June 2033 | 6,000 | \$ 118,080 | 144,000 |
| Corporate bonds (3.50% - 7.38%), with various maturities through October 2016 | \$ 1,925,000 | 1,953,710 | 1,972,638 |
| Foreign bonds (5.25%-5.75%), with various maturities through April 2015 | \$ 970,000 | 1,356,454 | 1,255,545 |
| Government bond (4.75%), due January 2013 | \$ 100,000 | 147,221 | 136,705 |
| Certificates of deposit (4.80% - 4.85%), with various maturities through February 2008 | \$ 200,000 | 200,041 | 244,154 |
| Mutual funds | - | <u>2,085,921</u> | <u>1,798,151</u> |
| | | <u>\$ 5,861,427</u> | <u>5,551,193</u> |

The cost of investments totaled \$5,493,000 and \$5,337,648 as of December 31, 2007 and 2006, respectively.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2007 and 2006

(3) Investments, Continued

Investment income, net, consists of the following:

| | <u>2007</u> | <u>2006</u> |
|---------------------------|-------------------|------------------|
| Dividends and interest | \$ 423,782 | 239,385 |
| Realized gains | 19,107 | 877,513 |
| Unrealized gains (losses) | <u>154,882</u> | <u>(484,553)</u> |
| | <u>\$ 597,771</u> | <u>632,345</u> |

(4) Leases

IUPAC leases its facilities under an operating lease, which began in March 1997. This lease has a term of ten years with options to extend the term of the lease for successive one-year periods not to exceed ten additional years. Building operating expenses totaled \$27,584 and \$25,168 in 2007 and 2006, respectively.

Future estimated minimum rental expenses consist of \$28,964 for the year ending December 31, 2008.

(5) Net Assets

Temporarily restricted net assets as of December 31, 2007 and 2006 consist of interest earned on permanently restricted net assets and several grants not fully expended as of those dates.

Permanently restricted net assets consist of the Paulo Fransozini Endowment Fund totaling \$5,659, the CHEMRAWN VII Fund totaling \$48,698, and the Samsung General Chemicals Endowment Fund totaling \$138,000, as of December 31, 2007 and 2006. Income earned by the Paulo Fransozini Endowment Fund is restricted for awards to science students to attend particular IUPAC meetings. Income earned by the CHEMRAWN VII Fund is restricted for awards to support the work of the CHEMRAWN VII Future Actions Committee. Income earned by the Samsung General Chemicals Endowment Fund is restricted for awards to students and researchers in the field of polymer science and support of educational projects of the IUPAC Macromolecular Division. Such income is recorded as temporarily restricted when earned. Expenses of \$12,000 were paid out of the Samsung General Chemicals Endowment Fund during 2006 in accordance with the grant agreement.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2007 and 2006

(6) Concentrations of Credit and Market Risk

Financial instruments that potentially expose IUPAC to concentrations of credit and market risk consist primarily of cash equivalents, investments, and subscriptions receivable. Cash equivalents and investments are held by Wachovia Bank, N.A. and Wachovia Securities, and no single investment exceeds ten percent of total investments. Subscriptions receivable are amounts due from national adhering organizations. Management provides for probable uncollectible amounts through a provision for bad debt expense and an adjustment to a valuation allowance based on its assessment of the current status of individual accounts.

Beginning in 2004, national adhering organizations were billed their annual national subscriptions in their national foreign currency. As a result, IUPAC has assumed the risk of changes in the foreign currency rates in relation to the United States dollar on these billings. IUPAC has made purchases of certain foreign currency-denominated investments in an effort to reduce the risk of foreign currency exchange losses on these billings when collected.

(7) Retirement Plans

IUPAC has established a defined contribution retirement plan. The plan covers all employees and offers 100% vesting after one year of service. IUPAC made no contributions to the plan in 2007 or 2006.

INTERNATIONAL UNION OF
PURE AND APPLIED CHEMISTRY

Financial Statements

December 31, 2008 and 2007

(With Independent Auditors' Report Thereon)

BATCHELOR, TILLERY & ROBERTS, LLP

CERTIFIED PUBLIC ACCOUNTANTS

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Independent Auditors' Report

The Executive Committee
International Union of Pure and Applied Chemistry:

We have audited the accompanying statements of financial position of the International Union of Pure and Applied Chemistry ("IUPAC") as of December 31, 2008 and 2007, and the related statements of activities, cash flows, and functional expenses for the years then ended. These financial statements are the responsibility of IUPAC's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of IUPAC's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of IUPAC as of December 31, 2008 and 2007, and the changes in its net assets and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Batchelor, Tillery & Roberts, LLP

May 27, 2009

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Financial Position

December 31, 2008 and 2007

| <u>Assets</u> | <u>2008</u> | <u>2007</u> |
|---|---------------------|------------------|
| Current assets: | | |
| Cash and cash equivalents | \$ 883,312 | 768,224 |
| Subscriptions receivable (net of allowance for doubtful accounts of \$35,000 in 2008 and \$74,100 in 2007) | 60,150 | 67,350 |
| Inventories | 16,323 | 12,373 |
| Prepaid expenses and other assets | <u>27,026</u> | <u>5,572</u> |
| Total current assets | 986,811 | 853,519 |
| Furniture, fixtures, and equipment, net | 19,414 | 24,130 |
| Investments, at market value | <u>4,501,238</u> | <u>5,861,427</u> |
| | <u>\$ 5,507,463</u> | <u>6,739,076</u> |
| <u>Liabilities and Net Assets</u> | | |
| Current liabilities: | | |
| Accounts payable and accrued expenses | 104,666 | 41,010 |
| Unearned subscriptions | <u>755,165</u> | <u>815,316</u> |
| Total current liabilities | <u>859,831</u> | <u>856,326</u> |
| Commitments | | |
| Net assets: | | |
| Unrestricted | 4,421,622 | 5,613,367 |
| Temporarily restricted | 33,653 | 77,026 |
| Permanently restricted | <u>192,357</u> | <u>192,357</u> |
| Total net assets | <u>4,647,632</u> | <u>5,882,750</u> |
| | <u>\$ 5,507,463</u> | <u>6,739,076</u> |

See accompanying notes to financial statements.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Activities

Year ended December 31, 2008, with comparative totals for 2007

| | 2008 | | | Total | 2007 |
|--|--------------|---------------------------|---------------------------|-------------|-----------|
| | Unrestricted | Temporarily restricted | Permanently restricted | | |
| Support: | | | | | |
| Grants and contributions | \$ 47,455 | - | - | 47,455 | 235,493 |
| National subscriptions and service charges | 770,326 | - | - | 770,326 | 730,596 |
| Affiliate membership program | 78,178 | - | - | 78,178 | 75,117 |
| Total support | 895,959 | - | - | 895,959 | 1,041,206 |
| Net assets released from restrictions | 54,239 | (54,239) | - | - | - |
| Total support and net assets released from restrictions | 950,198 | (54,239) | - | 895,959 | 1,041,206 |
| Other revenue (expense): | | | | | |
| Publications | 849,500 | - | - | 849,500 | 820,431 |
| Investment return, net | (981,126) | 10,866 | - | (970,260) | 597,771 |
| Total other revenue (expense) | (131,626) | 10,866 | - | (120,760) | 1,418,202 |
| Total support and other revenue | 818,572 | (43,373) | - | 775,199 | 2,459,408 |
| Expenses: | | | | | |
| Program and publications | 1,235,419 | - | - | 1,235,419 | 1,685,479 |
| Management and general | 774,898 | - | - | 774,898 | 696,193 |
| Total expenses | 2,010,317 | - | - | 2,010,317 | 2,381,672 |
| (Decrease) increase in net assets | (1,191,745) | (43,373) | - | (1,235,118) | 77,736 |
| Net assets, beginning of year | 5,613,367 | 77,026 | 192,357 | 5,882,750 | 5,805,014 |
| Net assets, end of year | \$ 4,421,622 | 33,653 | 192,357 | 4,647,632 | 5,882,750 |

(Continued)

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Activities, Continued

Year ended December 31, 2007

| | <u>Unrestricted</u> | <u>Temporarily restricted</u> | <u>Permanently restricted</u> | <u>Total</u> |
|--|---------------------|-----------------------------------|-----------------------------------|------------------|
| Support: | | | | |
| Grants and contributions | \$ 135,493 | 100,000 | - | 235,493 |
| National subscriptions and service charges | 730,596 | - | - | 730,596 |
| Affiliate membership program | <u>75,117</u> | <u>-</u> | <u>-</u> | <u>75,117</u> |
| Total support | 941,206 | 100,000 | - | 1,041,206 |
| Net assets released from restrictions | <u>64,417</u> | <u>(64,417)</u> | <u>-</u> | <u>-</u> |
| Total support and net assets released from restrictions | <u>1,005,623</u> | <u>35,583</u> | <u>-</u> | <u>1,041,206</u> |
| Other revenue: | | | | |
| Publications | 820,431 | - | - | 820,431 |
| Investment return, net | <u>587,059</u> | <u>10,712</u> | <u>-</u> | <u>597,771</u> |
| Total other revenue | <u>1,407,490</u> | <u>10,712</u> | <u>-</u> | <u>1,418,202</u> |
| Total support and other revenue | <u>2,413,113</u> | <u>46,295</u> | <u>-</u> | <u>2,459,408</u> |
| Expenses: | | | | |
| Program and publications | 1,685,479 | - | - | 1,685,479 |
| Management and general | <u>696,193</u> | <u>-</u> | <u>-</u> | <u>696,193</u> |
| Total expenses | <u>2,381,672</u> | <u>-</u> | <u>-</u> | <u>2,381,672</u> |
| Increase in net assets | 31,441 | 46,295 | - | 77,736 |
| Net assets, beginning of year | <u>5,581,926</u> | <u>30,731</u> | <u>192,357</u> | <u>5,805,014</u> |
| Net assets, end of year | \$ <u>5,613,367</u> | <u>77,026</u> | <u>192,357</u> | <u>5,882,750</u> |

See accompanying notes to financial statements.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Cash Flows

Years ended December 31, 2008 and 2007

| | <u>2008</u> | <u>2007</u> |
|--|--------------------------|-----------------------|
| Cash flows from operating activities: | | |
| (Decrease) increase in net assets | \$ (1,235,118) | 77,736 |
| Adjustments to reconcile (decrease) increase in net assets to net cash provided by operating activities: | | |
| Depreciation and amortization | 6,569 | 6,330 |
| Bad debt (recovery) expense | (39,163) | 17,797 |
| Realized gains on investments | (61,370) | (19,107) |
| Unrealized losses (gains) on investments | 1,348,083 | (154,882) |
| Changes in operating assets and liabilities: | | |
| Subscriptions receivable | 46,363 | 3,411 |
| Inventories | (3,950) | (4,741) |
| Prepaid expenses and other assets | (21,454) | 7,075 |
| Accounts payable and accrued expenses | 63,656 | (6,793) |
| Unearned subscriptions | <u>(60,151)</u> | <u>182,557</u> |
| Net cash provided by operating activities | <u>43,465</u> | <u>109,383</u> |
| Cash flows from investing activities: | | |
| Purchases of furniture, fixtures, and equipment | (1,853) | (13,054) |
| Proceeds from sales of investments | 658,688 | 144,992 |
| Purchases of investments | <u>(585,212)</u> | <u>(281,237)</u> |
| Net cash provided by (used in) investing activities | <u>71,623</u> | <u>(149,299)</u> |
| Net increase (decrease) in cash and cash equivalents | 115,088 | (39,916) |
| Cash and cash equivalents, beginning of year | <u>768,224</u> | <u>808,140</u> |
| Cash and cash equivalents, end of year | \$ <u><u>883,312</u></u> | <u><u>768,224</u></u> |

See accompanying notes to financial statements.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Functional Expenses

Year ended December 31, 2008, with comparative totals for 2007

| | 2008 | | | <u>2007</u> |
|----------------------------------|-------------------------------------|-----------------------------------|------------------|------------------|
| | <u>Program and publications</u> | <u>Management and general</u> | <u>Total</u> | |
| Administrative and project costs | \$ 147,885 | 72,463 | 220,348 | 314,740 |
| Audit and accounting | - | 28,929 | 28,929 | 29,804 |
| Bad debts (recoveries) | - | (39,163) | (39,163) | 17,797 |
| Building operations | - | 34,799 | 34,799 | 23,370 |
| Contracted services | 495,307 | 22,277 | 517,584 | 476,789 |
| Contributions | 42,391 | - | 42,391 | 35,134 |
| Depreciation and amortization | - | 6,569 | 6,569 | 6,330 |
| Insurance | - | 3,265 | 3,265 | 2,960 |
| Maintenance | - | 814 | 814 | 1,364 |
| Office supplies and expenses | - | 27,830 | 27,830 | 38,810 |
| Payroll taxes and benefits | - | 78,194 | 78,194 | 68,817 |
| Postage | 81,654 | 11,272 | 92,926 | 80,381 |
| Printing and publications | 3,961 | 31,123 | 35,084 | 15,544 |
| Prizes and awards | 10,523 | - | 10,523 | 19,520 |
| Return of unused grant | 31,871 | - | 31,871 | - |
| Salaries | - | 353,585 | 353,585 | 343,398 |
| Travel and subsistence | 421,827 | 125,905 | 547,732 | 889,553 |
| Utilities | - | 16,992 | 16,992 | 17,044 |
| Miscellaneous | - | 44 | 44 | 317 |
| | <u>\$ 1,235,419</u> | <u>774,898</u> | <u>2,010,317</u> | <u>2,381,672</u> |

(Continued)

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Statements of Functional Expenses, Continued

Year ended December 31, 2007

| | Program and publications | Management and general | <u>Total</u> |
|----------------------------------|-----------------------------|---------------------------|------------------|
| Administrative and project costs | \$ 298,603 | 16,137 | 314,740 |
| Audit and accounting | - | 29,804 | 29,804 |
| Bad debts | - | 17,797 | 17,797 |
| Building operations | - | 23,370 | 23,370 |
| Contracted services | 469,195 | 7,594 | 476,789 |
| Contributions | 35,134 | - | 35,134 |
| Depreciation and amortization | - | 6,330 | 6,330 |
| Insurance | - | 2,960 | 2,960 |
| Maintenance | - | 1,364 | 1,364 |
| Office supplies and expenses | - | 38,810 | 38,810 |
| Payroll taxes and benefits | - | 68,817 | 68,817 |
| Postage | 66,294 | 14,087 | 80,381 |
| Printing and publications | 4,788 | 10,756 | 15,544 |
| Prizes and awards | 19,520 | - | 19,520 |
| Salaries | - | 343,398 | 343,398 |
| Travel and subsistence | 791,945 | 97,608 | 889,553 |
| Utilities | - | 17,044 | 17,044 |
| Miscellaneous | - | 317 | 317 |
| | <u>\$ 1,685,479</u> | <u>696,193</u> | <u>2,381,672</u> |

See accompanying notes to financial statements.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements

December 31, 2008 and 2007

(1) Nature of Organization and Significant Accounting Policies

The International Union of Pure and Applied Chemistry (“IUPAC”), founded in 1919, is a voluntary nongovernmental, nonprofit association of fifty-two national adhering organizations representing the chemists of their countries. Additionally, there are fourteen associate national adhering organizations, thirty-one associated organizations, and eighty-two company associates.

The objectives of IUPAC are to promote continuing cooperation among the chemists of the member countries, to study topics of international importance to pure and applied chemistry which need standardization or codification, to cooperate with other international organizations which deal with topics of a chemical nature, and to contribute to the advancement of pure and applied chemistry in all its aspects.

The significant accounting policies of IUPAC are as follows:

(a) Support, Revenues, and Expenses

IUPAC derives its revenues primarily from national subscriptions, publication income, and investment income. Support, revenues, and expenses are recorded on the accrual basis of accounting, and revenue received for future subscriptions is deferred until the applicable year.

Contributions received are measured at their fair values and are reported as an increase in net assets. IUPAC reports contributions of cash and other assets as restricted support if they are received with donor stipulations that limit the use of the donated assets or if they are designated as support for future periods. When a donor restriction expires, that is, when a stipulated time restriction ends or purpose restriction is accomplished, temporarily restricted net assets are reclassified to unrestricted net assets and reported in the statement of activities as net assets released from restrictions. Donor restricted contributions whose restrictions are met in the same reporting period are reported as unrestricted support.

(b) Endowment Funds

The Executive Committee of IUPAC has interpreted relevant state law as requiring the preservation of the fair value of the original gift as of the gift date of the donor-restricted endowment funds absent explicit donor stipulations to the contrary. As a result of this interpretation, IUPAC classifies as permanently restricted net assets (a) the original value of gifts donated to the permanent endowment, (b) the original value of subsequent gifts to the permanent endowment, and (c) accumulations to the permanent endowment made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund. The remaining portion of the donor-restricted endowment fund that is not classified in permanently restricted net assets is classified as temporarily restricted net assets until those amounts are appropriated for expenditure by IUPAC in a manner consistent with the relevant endowment fund. IUPAC considers the following factors in making a determination to appropriate or accumulate donor-restricted endowment funds:

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2008 and 2007

(1) Nature of Organization and Significant Accounting Policies, Continued

(b) Endowment Funds, Continued

- (1) The duration and preservation of the fund
- (2) The purposes of the organization and the donor-restricted endowment fund
- (3) General economic conditions
- (4) The possible effect of inflation and deflation
- (5) The expected total return from income and the appreciation of investments
- (6) Other resources of the organization
- (7) The investment policies of the organization.

Funds with Deficiencies

From time to time, the fair value of assets associated with individual donor-restricted endowment funds may fall below the level that the donor requires the organization to retain as a fund of perpetual duration. In accordance with accounting principles generally accepted in the United States of America ("GAAP"), deficiencies of this nature are reported in unrestricted net assets.

Return Objectives and Risk Parameters

IUPAC has adopted investment and spending policies for endowment assets that attempt to provide a predictable stream of funding to programs supported by its endowment while seeking to maintain the purchasing power of the endowment assets. Endowment assets include those assets of donor-restricted funds that the organization must hold in perpetuity or for a donor-specified period(s), as well as any board-designated funds. Under this policy, as approved by the Executive Committee, the endowment assets are invested in a manner that is intended to produce results that exceed the price and yield results of a benchmark portfolio and its respective market index, while assuming a moderate level of investment risk. IUPAC expects its endowment funds, over time, to provide an average rate of return of approximately 4.5% annually. Actual returns in any given year may vary from this amount.

Strategies Employed for Achieving Objectives

To satisfy its long-term rate-of-return objectives, IUPAC relies on a total return strategy in which investment returns are achieved through both capital appreciation (realized and unrealized) and current yield (interest and dividends). The organization targets a diversified asset allocation for its entire investment portfolio that places an emphasis on mutual funds, bonds and cash equivalents to achieve its long-term return objectives within prudent risk constraints.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2008 and 2007

(1) Nature of Organization and Significant Accounting Policies, Continued

(b) Endowment Funds, Continued

Spending Policy and How the Investment Objectives Relate to Spending Policy

IUPAC has a policy of appropriating for distribution each year the interest income allocated to each of its endowment funds, with such allocation approximating a 5% return for 2008. In establishing this policy, management of IUPAC considered the long-term expected return on its endowment. This is consistent with the organization's objective to maintain the purchasing power of the endowment assets held in perpetuity or for a specified term as well as to provide additional real growth through new gifts and investment return.

(c) Cash and Cash Equivalents

Cash and cash equivalents include commercial checking and money market accounts. At year-end and throughout the year, IUPAC had on deposit with a financial institution amounts in excess of FDIC insurance limits of \$250,000. IUPAC has not experienced any losses in such accounts and believes it is not exposed to any significant credit risk on cash and cash equivalents.

(d) Allowance for Doubtful Accounts

An allowance is provided for uncollectible receivables equal to the losses that are estimated to be incurred in the collection of all receivables. The allowance is based on historical collection experience combined with a review of the current status of the existing receivables.

(e) Inventories

Inventories, consisting of various publications, are stated at the lower of cost or market, with cost determined on the weighted-average method.

(f) Investments

Investments in marketable securities are stated at fair market value. Investment income (including gains and losses on investments, interest, and dividends) is included in the statement of activities as a change in unrestricted net assets, except for earnings on permanently restricted net assets which are reported as temporarily restricted.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2008 and 2007

(1) Nature of Organization and Significant Accounting Policies, Continued

(g) Fair Value Measurements

On January 1, 2008, IUPAC adopted the provisions of SFAS No. 157, Fair Value Measurements ("SFAS 157"), for fair value measurements. SFAS 157 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. SFAS 157 also establishes a framework for measuring fair value and expands disclosures about fair value measurements.

SFAS 157 establishes a fair value hierarchy, which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard describes three levels of inputs that may be used to measure fair value:

Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities

Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly

Level 3: one or more significant inputs or significant value drivers are unobservable or based on market assumptions

(h) Furniture, Fixtures, and Equipment

Furniture, fixtures, and equipment are recorded at cost. Depreciation is provided over the estimated useful lives of the assets using the straight-line method.

(i) Income Taxes

IUPAC is exempt from federal and state income taxes under Section 501(c)(3) of the Internal Revenue Code and applicable state statutes.

In June 2006, the FASB issued Interpretation No. 48, "Accounting for Uncertainty in Income Taxes – an Interpretation of FASB Statement No. 109" ("FIN 48"). FIN 48 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements in accordance with SFAS 109, "Accounting for Income Taxes". FIN 48 created a single model to address accounting for uncertain income tax positions and established a minimum recognition threshold a tax position must meet before being recognized in the financial statements.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2008 and 2007

(1) Nature of Organization and Significant Accounting Policies, Continued

(i) Income Taxes, Continued

The evaluation of a tax position under FIN 48 is a two-step process. The first step is the recognition process to determine if it is more likely than not that a tax position will be sustained upon examination by the appropriate taxing authority, based on the technical merits of the position. The second step is a measurement process whereby a tax position that meets the more likely than not recognition threshold is calculated to determine the amount of benefit/expense to recognize in the financial statements. The tax position is measured at the largest amount of benefit/expense that is more likely than not of being realized upon ultimate settlement.

If there are changes in net assets as a result of the initial application of FIN 48, these will be accounted for as an adjustment to the opening balance of net assets. Additional disclosures about the amounts of such tax liabilities will be required also. In December 2008, the FASB delayed the effective date of FIN 48 for certain nonpublic enterprises to annual financial statements for fiscal years beginning after December 15, 2008. IUPAC has deferred adoption of FIN 48 until its 2009 financial statements. Because IUPAC is generally exempt from income taxes, management anticipates that adoption of FIN 48 will not have a material impact on its financial statements.

(j) Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of changes in net assets during the reporting period. Accordingly, actual results could differ from those estimates.

(k) Reclassifications

Certain 2007 amounts have been reclassified to conform to the 2008 presentation. These reclassifications had no impact on total net assets or total increase in net assets as previously reported.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2008 and 2007

(2) Furniture, Fixtures, and Equipment

Furniture, fixtures, and equipment consist of the following:

| | <u>2008</u> | <u>2007</u> |
|--|------------------|------------------|
| Equipment | \$ 63,068 | 61,215 |
| Furniture and fixtures | 48,877 | 48,877 |
| Leasehold improvements | <u>16,097</u> | <u>16,097</u> |
| | 128,042 | 126,189 |
| Less accumulated depreciation and amortization | <u>(108,628)</u> | <u>(102,059)</u> |
| | <u>\$ 19,414</u> | <u>24,130</u> |

(3) Investments

IUPAC's investments are held by Wachovia Securities. The following tables present the fair value of those investments (no individual investment represents five percent or more of net assets):

| | <u>2008</u> | | | |
|--|---------------------------------|---------------------|------------------|------------------|
| | <u>Number of shares/par</u> | <u>Level 1</u> | <u>Level 2</u> | <u>Total</u> |
| Mutual funds | - | \$ 1,187,792 | - | 1,187,792 |
| Preferred fixed rate cap security (5.88%), matures June 2033 | 6,000 | - | 116,100 | 116,100 |
| Corporate bonds (3.50% - 7.38%), with various maturities through October 2016 | \$ 2,125,000 | - | 1,883,895 | 1,883,895 |
| Foreign bonds (5.25%-5.75%), with various maturities through April 2015 | \$ 870,000 | - | 1,169,421 | 1,169,421 |
| Government bond (4.75%), due January 2013 | \$ 100,000 | - | <u>144,030</u> | <u>144,030</u> |
| | | <u>\$ 1,187,792</u> | <u>3,313,446</u> | <u>4,501,238</u> |

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2008 and 2007

(3) Investments, Continued

| | <u>2007</u> | |
|---|---------------------------------------|-----------------------------|
| | <u>Number of</u> <u>shares/par</u> | <u>Fair</u> <u>value</u> |
| Mutual funds | - | \$ 2,085,921 |
| Preferred fixed rate cap security (5.88%), matures June 2033 | 6,000 | 118,080 |
| Corporate bonds (3.50% - 7.38%), with various maturities through October 2016 | \$ 1,925,000 | 1,953,710 |
| Foreign bonds (5.25%-5.75%), with various maturities through April 2015 | \$ 970,000 | 1,356,454 |
| Government bond (4.75%), due January 2013 | \$ 100,000 | 147,221 |
| Certificates of deposit (4.80% - 4.85%), with various maturities through February 2008 | \$ 200,000 | <u>200,041</u> |
| | | <u>\$ 5,861,427</u> |

The cost of investments totaled \$5,480,893 and \$5,493,000 as of December 31, 2008 and 2007, respectively.

Investment return, net, consists of the following:

| | <u>2008</u> | <u>2007</u> |
|-----------------------------|---------------------|----------------|
| Dividends and interest | \$ 261,729 | 423,782 |
| Realized gains (losses) | 61,369 | (19,669) |
| Unrealized (losses) gains | (1,348,083) | 154,882 |
| Foreign exchange rate gains | <u>54,725</u> | <u>38,776</u> |
| | <u>\$ (970,260)</u> | <u>597,771</u> |

(4) Leases

IUPAC leases its facilities under an operating lease, which began in March 1997. This lease has a term of ten years with options to extend the term of the lease for successive one-year periods not to exceed ten additional years. Building operating expenses totaled \$34,799 and \$27,584 in 2008 and 2007, respectively.

Future estimated minimum rental expenses consist of \$28,964 for the year ending December 31, 2009.

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2008 and 2007

(5) Net Assets

Temporarily restricted net assets as of December 31, 2008 and 2007 consist of interest earned on permanently restricted net assets and one grant not fully expended as of December 31, 2007.

Permanently restricted net assets include donor-restricted endowment funds and consist of the Paulo Fransozini Endowment Fund totaling \$5,659, the CHEMRAWN VII Fund totaling \$48,698, and the Samsung General Chemicals Endowment Fund totaling \$138,000, as of December 31, 2008 and 2007. Income earned by the Paulo Fransozini Endowment Fund is restricted for awards to science students to attend particular IUPAC meetings. Income earned by the CHEMRAWN VII Fund is restricted for awards to support the work of the CHEMRAWN VII Future Actions Committee. Income earned by the Samsung General Chemicals Endowment Fund is restricted for awards to students and researchers in the field of polymer science and support of educational projects of the IUPAC Macromolecular Division. Such income is recorded as temporarily restricted when earned.

The following represents changes in endowment net assets (all donor-restricted endowment funds) for 2008 (does not include temporarily restricted net assets of \$44,439 related to a grant as of December 31, 2007):

| | Temporarily <u>restricted</u> | Permanently <u>restricted</u> | <u>Total</u> |
|---|----------------------------------|----------------------------------|----------------|
| Endowment net assets, December 31, 2007 | \$ 32,587 | 192,357 | 224,944 |
| Investment interest income | 10,866 | - | 10,866 |
| Appropriation of endowment assets for expenditure | <u>(9,800)</u> | <u>-</u> | <u>(9,800)</u> |
| Endowment net assets, December 31, 2008 | \$ <u>33,653</u> | <u>192,357</u> | <u>226,010</u> |

INTERNATIONAL UNION OF PURE
AND APPLIED CHEMISTRY

Notes to Financial Statements, Continued

December 31, 2008 and 2007

(6) Concentrations of Credit and Market Risk

Financial instruments that potentially expose IUPAC to concentrations of credit and market risk consist primarily of cash equivalents, investments, and subscriptions receivable. Cash equivalents and investments are held by Wachovia Bank, N.A. and Wachovia Securities, and no single investment exceeds five percent of total investments. Subscriptions receivable are amounts due from national adhering organizations. Management provides for probable uncollectible amounts through a provision for bad debt expense and an adjustment to a valuation allowance based on its assessment of the current status of individual accounts.

National adhering organizations are billed their annual national subscriptions in their national foreign currency. As a result, IUPAC assumes the risk of changes in the foreign currency rates in relation to the United States dollar on these billings. IUPAC has made purchases of certain foreign currency-denominated investments in an effort to reduce the risk of foreign currency exchange losses on these billings when collected.

(7) Retirement Plans

IUPAC has established a defined contribution retirement plan. The plan covers all employees and offers 100% vesting after one year of service. IUPAC made no contributions to the plan in 2008 or 2007.

Amounts in thousands of USD

Sources and Uses Analysis of 2008-9 Budget

| | Budget 2008-9 | Budget 2010-11 | Change Increase/ (Decrease) |
|--|--------------------------|---------------------------|--|
| National Subscriptions | \$1,522.1 | \$1,615.3 | \$93.2 |
| Dividends & Interest | \$480.0 | \$500.0 | \$20.0 |
| Other Income | \$40.0 | \$40.0 | \$0.0 |
| Publications | \$894.0 | \$874.0 | (\$20.0) |
| Total Income | <u>\$2,936.1</u> | <u>\$3,029.3</u> | <u>\$93.2</u> |
| AMP and CI | \$163.0 | \$134.0 | (\$29.0) |
| Administrative | \$1,000.0 | \$1,070.0 | \$70.0 |
| General | \$456.8 | \$470.0 | \$13.2 |
| General Assembly | \$320.0 | \$355.0 | \$35.0 |
| Advisory Standing Committees | \$164.4 | \$172.4 | \$8.0 |
| Operating Standing Committees (Operations) | \$67.6 | \$73.6 | \$6.0 |
| Division Operations | \$148.3 | \$151.3 | \$3.0 |
| Projects (Commitments) | \$616.0 | \$603.0 | (\$13.0) |
| Total Expense | <u>\$2,936.1</u> | <u>\$3,029.3</u> | <u>\$93.2</u> |
| Net Income/(Expense) | <u>\$0.0</u> | <u>\$0.0</u> | <u>\$0.0</u> |

Division and Standing Committee Allocations
2010-11

| Division & STC Budgets | Budget | Projects | Operations | Budget | Projects | Operations | Delta |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------------|
| | 2008-9 | 2008-9 | 2008-9 | 2010-11 | 2010-11 | 2010-11 | 2008-9/ 2010-11 |
| I Physical and Biophysical | 65.3 | 45.7 | 19.6 | 67.3 | 47.1 | 20.2 | 2.0 |
| II Inorganic | 53.2 | 37.2 | 16.0 | 55.2 | 38.6 | 16.6 | 2.0 |
| III Organic and Biomolecular | 54.4 | 38.1 | 16.3 | 54.4 | 38.1 | 16.3 | - |
| IV Polymer | 54.5 | 38.2 | 16.4 | 56.5 | 39.6 | 17.0 | 2.0 |
| V Analytical | 58.6 | 41.0 | 17.6 | 60.6 | 42.4 | 18.2 | 2.0 |
| VI Chemistry & the Environment | 68.0 | 47.6 | 20.4 | 68.0 | 47.6 | 20.4 | - |
| VII Chemistry & Human Health | 60.3 | 42.2 | 18.1 | 62.3 | 43.6 | 18.7 | 2.0 |
| VIII Chemical Nomenclature and Structure Representatic | 80.0 | 56.0 | 24.0 | 80.0 | 56.0 | 24.0 | - |
| Strategic Opportunities Fund | 120.0 | 120.0 | | 100.0 | 100.0 | | (20.0) |
| Total Divisions | <u>614.3</u> | <u>466.0</u> | <u>148.3</u> | <u>604.3</u> | <u>453.0</u> | <u>151.3</u> | <u>(10.0)</u> |
| | Budget | Projects | Operations | Budget | Projects | Operations | |
| Standing Committees | 2008-9 | 2008-9 | 2008-9 | 2010-11 | 2010-11 | 2010-11 | |
| Executive | 45.0 | - | 45.0 | 50.0 | - | 50.0 | 5.0 |
| Bureau | 80.0 | - | 80.0 | 85.0 | - | 85.0 | 5.0 |
| CHEMRAWN | 29.3 | - | 29.3 | 31.3 | - | 31.3 | 2.0 |
| CPEP | 16.4 | - | 16.4 | 18.4 | - | 18.4 | 2.0 |
| CCE | 38.3 | 20.0 | 18.3 | 40.3 | 20.0 | 20.3 | 2.0 |
| COCI | 40.0 | 20.0 | 20.0 | 42.0 | 20.0 | 22.0 | 2.0 |
| FC | 15.0 | - | 15.0 | 15.0 | - | 15.0 | - |
| Evaluation Committee | - | - | - | - | - | - | - |
| ICTNS | 8.0 | - | 8.0 | 4.0 | - | 4.0 | (4.0) |
| Total Standing Committees | <u>272.0</u> | <u>40.0</u> | <u>232.0</u> | <u>286.0</u> | <u>40.0</u> | <u>246.0</u> | |
| Advisory Committees | 164.4 | - | 164.4 | 172.4 | - | 172.4 | 8.0 |
| Operational Committees | 107.6 | 40.0 | 67.6 | 113.6 | 40.0 | 73.6 | 6.0 |
| Total Projects (Commitments) | | <u>616.0</u> | | | <u>603.0</u> | | <u>(13.0)</u> |

IUPAC NATIONAL SUBSCRIPTIONS FOR 2010-11

| NAO | Currency | 2009 | 2010 | 2011 |
|-----------------|----------|----------|----------|----------|
| Australia | AUD | 14.2 | 16.9 | 17.5 |
| Austria | EUR | 5.4 | 5.5 | 5.7 |
| Bangladesh | USD | 2.0 | 1.8 | 1.9 |
| Belarus | USD | 4.2 | 4.0 | 4.0 |
| Belgium | EUR | 15.9 | 15.7 | 16.2 |
| Brazil | USD | 24.2 | 27.7 | 28.6 |
| Bulgaria | BGN | 3.4 | 3.3 | 3.3 |
| Canada | CAD | 20.6 | 22.9 | 23.7 |
| Chile | CLP | 2,595.0 | 3,340.0 | 3,460.0 |
| China/Beijing | CNY | 377.1 | 450.0 | 464.0 |
| China/Taipei | TWD | 625.4 | 758.0 | 782.0 |
| Croatia | USD | 1.0 | 1.0 | 1.0 |
| Cuba | USD | 1.0 | 1.0 | 1.0 |
| Czech Republic | CZK | 104.9 | 113.0 | 117.0 |
| Denmark | DKK | 40.9 | 33.8 | 34.9 |
| Egypt | EGP | 22.2 | 16.7 | 17.3 |
| Ethiopia | USD | 1.0 | 1.0 | 1.0 |
| Finland | EUR | 4.6 | 5.0 | 5.1 |
| France | EUR | 29.2 | 29.1 | 30.0 |
| Germany | EUR | 39.5 | 40.8 | 42.0 |
| Greece | EUR | 2.7 | 2.6 | 2.7 |
| Hungary | HUF | 982.1 | 1,177.0 | 1,222.0 |
| India | USD | 22.6 | 24.2 | 25.0 |
| Ireland | EUR | 14.5 | 14.3 | 14.7 |
| Israel | ILS | 37.1 | 35.3 | 36.2 |
| Italy | EUR | 25.0 | 24.7 | 25.4 |
| Jamaica | JMD | 67.5 | 86.1 | 86.1 |
| Japan | JPY | 8,214.5 | 5,850.0 | 6,030.0 |
| Jordan | JOD | 1.2 | 1.1 | 1.1 |
| Korea, Republic | KRW | 28,454.0 | 45,800.0 | 47,200.0 |
| Kuwait | KWD | 0.3 | 0.3 | 0.3 |
| Netherlands | EUR | 15.6 | 18.7 | 19.3 |
| New Zealand | NZD | 4.0 | 5.3 | 5.5 |
| Norway | NOK | 32.4 | 39.9 | 41.2 |
| Pakistan | PKR | 194.7 | 255.0 | 263.0 |
| Poland | PLN | 23.1 | 31.2 | 32.2 |
| Portugal | EUR | 3.6 | 3.6 | 3.8 |
| Puerto Rico | USD | 21.3 | 19.6 | 20.2 |
| Russia | USD | 10.8 | 13.3 | 13.8 |
| Serbia | USD | 1.0 | 1.0 | 1.0 |
| Slovakia | EUR | 1.8 | 1.8 | 1.8 |
| Slovenia | EUR | 3.1 | 2.8 | 2.8 |
| South Africa | ZAR | 53.6 | 83.6 | 85.6 |
| Spain | EUR | 16.9 | 17.1 | 17.7 |
| Sweden | SEK | 74.3 | 84.1 | 86.7 |
| Switzerland | CHF | 25.4 | 21.0 | 21.6 |
| Turkey | TRY | 12.0 | 14.6 | 14.9 |
| UK | GBP | 17.4 | 22.3 | 22.9 |
| Ukraine | USD | 3.4 | 4.1 | 4.2 |
| Uruguay | UYU | 23.7 | 23.7 | 23.7 |
| USA | USD | 114.9 | 109.4 | 112.8 |



History of the IChO

The idea to organize the International Chemistry Olympiad (IChO) was born in the former Czechoslovakia. The political situation in Czechoslovakia in the spring of 1968 was very tumultuous. Under new leaders the country was in an economic reform. Groups of intellectuals strove after a "socialism with a human face". There was a smell of independence in the air. The people were full of activities, they wanted more contacts with other countries. One of the new ideas was to organize an International Chemical Olympiad (this was the first name for this competition).

In 1968 the Chemistry Olympiad (ChO) was a part of a secondary school system already in all countries of the Soviet block. The ChO in the Soviet Union was a model for all other countries. This was a basis on which the idea of IChO was built. The teachers in the countries were already acquainted with the competition and its firm system (from the school round to the national round) was worked out. The Ministry of Education of the particular country was guarantor of the competition. Moreover, National Committees for Chemical Olympiads were established in the particular countries. This was done rather smoothly because the first participating countries were all members of the same political block. No long explanations were necessary. But the same structure prevented any invitation to a west country.

In the spring 1968 the Czechoslovak National Committee for ChO supported by the Ministry of Education, sent letters of invitation to all "socialist" countries, except Romania, which country was not welcome by the Soviet Union at that time. However, at the beginning of May 1968 the relations between Czechoslovakia and the Soviet Union started to be "nervous". Therefore, it is not astonishing that the invitation was accepted by Poland and Hungary only. The other three countries (Soviet Union, Bulgaria and German Democratic Republic) gave no response.

On May 15th, 1968 a meeting was organized in Ostrava (Czechoslovakia) with the aim to create some basic rules for the international competition, called later as International Chemical Olympiad. Three countries took part, with representatives of the National committees of the countries. The report gave answers to some fundamental questions that formed later a basis for the preliminary regulations of the new international competition. The first regulations were very simple and consisted of seven points.

1. Competitions of this kind should promote friendship and co-operation among the pupils, closer contacts among the young scientific workers, exchange of pedagogical and scientific experience.
2. The organizer of the competition is the Ministry of Education of the organizing country.
3. The competition should be organized at the end of the school year.
4. National team consists of pupils and accompanying persons (teachers).
5. Pupils of the secondary school without a special chemical orientation can only participate in the competition.
6. The IChO is a competition of individual pupils, not a competition of teams.
7. The IChO will consist of two parts: theoretical and experimental.

These first regulations were approved on June 21, 1968 during the 1st IChO.

Article 5

Objectives of the Federation

FASC is established:

1. to promote and maintain effective communication throughout the community of chemists and chemical scientists in Africa.
2. to promote collaborative activity among member societies and among the individual members of these societies.
3. to maintain and promote high professional, educational and ethical standards.
4. to disseminate chemical knowledge.
5. to act in an advisory, consultative and representative capacity in relation to African institutions and regional initiatives.
6. to promote cooperation with other international organizations and similar regional and international networks.

የአፍሪካ የኬሚስትሪ ባለሙያዎች ማህበራት ፌዴሬሽን
(አኬማሬ) መተዳደሪያ ደንብ

መግቢያ:

የአፍሪካ የኬሚስትሪ ባለሙያዎች ማህበራት ፌዴሬሽን (አኬማሬ) ዓላማ የኬሚካል ሳይንሶችን መስፋፋት እና በአፍሪካ ውስጥ ለሚኖሩ ሕዝቦች የልማት ፍላጎት እና ዓላማ መሟላት መሳሪያ መሆን የሚችለውን የኬሚስትሪ ትግባራን ለማሳደግ ነው።

እኛ ስማችንና ፊርማችን በዚህ ሰነድ መጨረሻ ገጽ ላይ የተመለከተው በአንቀጽ ሁለት የተገለጸውን ማህበር አቋቁመናል።

አንቀጽ አንድ

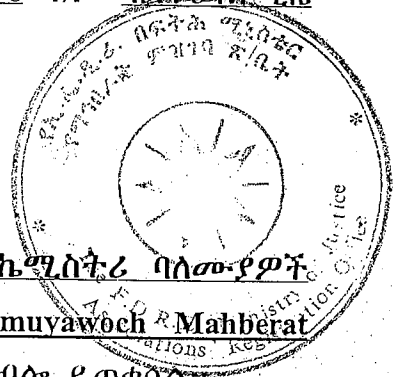
መቋቋም

ማህበሩ በ1952 ዓ/ም በወጣው የኢትዮጵያ ፍትሐብሔር ሕግ ቁጥር 404 እና በማህበራት ምዝገባ ደንብ 321/1959 መሰረት በመጋቢት 7 ቀን 1998 ዓ/ም ላልቀጠለጠ ጊዜ ተቋቋሟል።

አንቀጽ ሁለት

ስያሜ

በዚህ መተዳደሪያ ደንብ የተቋቋመው ማህበር የአፍሪካ የኬሚስትሪ ባለሙያዎች ማህበራት ፌዴሬሽን (አኬማሬ) (Yeafrica Yechemistry balemuyawoch Mahberat Federation) በሚል ስም የሚጠራ ሲሆን ከዚህ ቀጥሎ «ማህበር» ተብሎ ይጠቀሳል።



አንቀጽ ሶስት

ትርጉም

በዚህ ሰነድ ውስጥ «የኬሚስትሪ ባለሙያዎች ማህበራት» የሚለው ስያሜ በኬሚስትሪ እና በተያያዥ ሳይንሶች ውስጥ ሳይንስና ቴክኖሎጂን የማስፋፋት ዓላማ ያላቸውን ለትርፍ ያልተቋቋሙ ማህበራትን ይወካል።

Handwritten signatures: [Signature 1], [Signature 2], [Signature 3], [Signature 4], [Signature 5]

አንቀጽ አራት

አድራሻ

የማህበሩ ዋና መሥሪያ ቤት አዲስ አበባ ከተማ በአዲስ አበባ ዩኒቨርሲቲ ሳይንስ ፋኩልቲ ቅጥር ግቢ የሚገኝ ሲሆን እንደአስፈላጊነቱ በሌሎች ክልሎችም ቅርንጫፍ ቢሮችን ይከፍታል። ስልክ ቁጥር፣ 011 123 42 94 ፖስታ ሣጥን ቁጥር 329394 e-mail: cse@chem.aau.edu.et ፋክስ ቁጥር 011 123 42 96።

አንቀጽ አምስት

የማህበሩ ዓላማ

ማህበሩ የተቋቋመው ለሚከተሉት ዓላማች ነው።


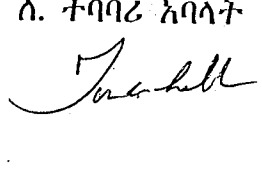
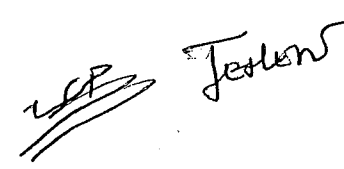
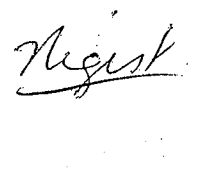
1. በአፍሪካ ውስጥ ባሉ በመላው የኬሚስትሪ ባለሙያዎች እና የኬሚካል ሳይንቲስቶች መካከል ውጤታማ ግንኙነትን ማበረታታት እና እንዲኖር ለማድረግ፣
2. በአባል ማኅበራት መካከል እና በእነዚህ ማኅበራት ግለሰብ አባላት መካከል የትብብር ተግባርን ለማሳደግ፣
3. ከፍተኛ የሙያ፣ የትምህርት እና የሥነ ምግባር ደረጃዎች እንዲኖሩ ለማድረግ እና ለማሳደግ፣
4. የኬሚካል እውቀትን ለማስራጨት፣
5. ከአፍሪካ ተቋማት እና ክልላዊ ሙከራዎች /ኢንሸፕሬቲቭ/ ጋር በተያያዘ በአማካሪነት እና በተወካይነት ደረጃ ለመሥራት፣
6. ከሌሎች ዓለም አቀፍ ድርጅቶች እና ተመሳሳይ ክልላዊ እና ዓለም አቀፋዊ ኔትወርኮች ጋር ያለውን ትብብር ለማሳደግ፣

አንቀጽ ስድስት

አባልነት

1. ማህበሩ መሥራች አባላትንና በዚህ መተዳደሪያ ደንብ መሰረት በጠቅላላው ጉባኤ ውሳኔ ተቀባይነት ያገኙ አባላትን ይይዛል።
2. ማህበሩ የሚከተሉት ሶስት የአባልነት ዓይነቶች ይኖሩታል፡
 - ሀ. ሙሉ አባላት
 - ሙሉ አባልነት በአንድ ሃገር ከፍተኛው በሦስት ዋና ዋና ማኅበራት እና ደረጃቸው አግባብ በሆነ የብዙ ሃገር /መልቲናሽናል/ ማኅበራት የተወሰነ ነው።
 - ለ. ተባባሪ አባላት



ተባባሪ አባልነት ዓላማቸውና ሥራዎቻቸው የምርጫ ዋስትናን ለሚሰጥ ለሌሎች ማኅበራት ሊሰጥ ይችላል። ተባባሪ አባላት የጠቅላላ ጉባዔ ስብሰባዎች ላይ የመገኘት መብት አላቸው። ነገር ግን ድምጽ የመስጠት መብት የላቸውም።

ሐ. የክብር አባላት

የክብር አባልነት ለማኅበሩ የተሰጡ የላቁ አገልግሎቶችን ወይም በቁላቁሶች ረገድ የተሰጡትን ግንዛቤ ውስጥ በማስገባት ለግለሰብ ሰዎች ሊሰጥ ይችላል። የክብር አባላት የጠቅላላ ጉባዔ ስብሰባዎች ላይ የመገኘት መብት አላቸው። ነገር ግን ድምጽ የመስጠት መብት የላቸውም።

አንቀጽ ሰባት

የአባላት መብት

1. ሁሉም ሙሉ አባላት እኩል መብት አላቸው።
2. የማህበር አባልነት ለወራሾችም ሆነ ለሌላ ሰው/ማህበር የማይተላለፍ የግል መብት ነው።
3. ማንኛውም የማህበሩ ሙሉ አባል፡-

ሀ/ የመምረጥ፣ የመመረጥና ስለማህበሩ እንቅስቃሴ ማንኛውንም መረጃ ጠይቆ የማግኘት፣

ለ/ በጠቅላላ ጉባዔው ስብሰባ የመገኘት፣ ስለማህበሩ እንቅስቃሴ አስተያየትና ድምጽ የመስጠት መብት አለው።

አንቀጽ ስምንት

የአባላት ግዴታ

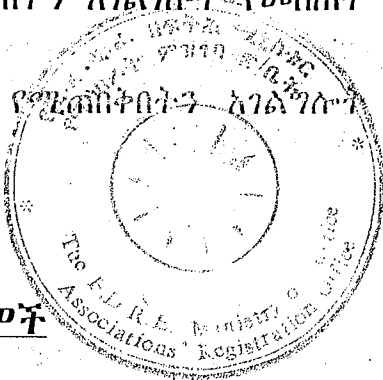
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2. ከማህበሩ ሲወጣ የሚፈለግበትን ዕዳ ይከፍላል።
3. ማንኛውም አባል የማህበሩን ዓላማ የማክበርና የሚጠበቅበትን አገልግሎት የመስጠት ግዴታ አለበት።
4. አንድ አባል የሚጠበቅበትን መዋጮ ካልከፈለ ወይም የሚጠበቅበትን አገልግሎት ካልሰጠ በመብቱ አይሰራበትም።

አንቀጽ ዘጠኝ

አባልነት የሚቋረጥባቸው ሁኔታዎች

አንድ አባል፡

1. ሲሞት፣ ወይም ሲፈርስ



[Handwritten signature]

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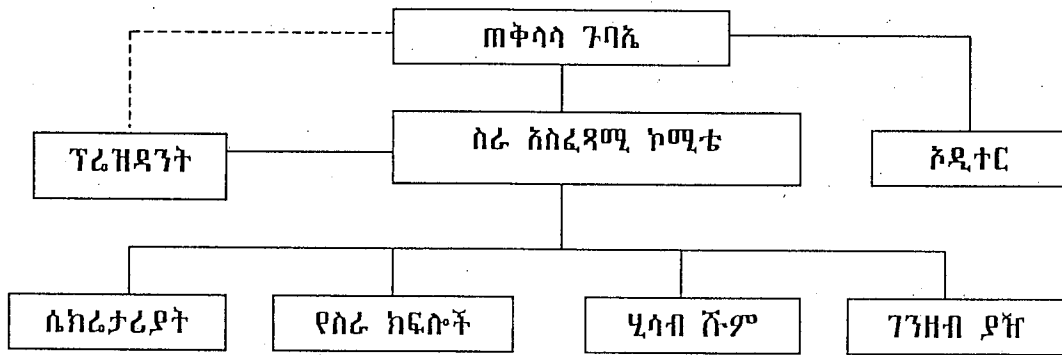
[Handwritten signature]

2. ሥልጣን ባለው ፍ/ቤት ወይም በመተዳደሪያ ደንቡ መሠረት በጠቅላላ ጉባኤው እንዲሰናበት ሲወሰን ወይም
3. በራሱ ፈቃድ በጽሁፍ ሲጠይቅ አባልነቱ ይቋረጣል።

አንቀጽ አስር

የማህበሩ መዋቅር

ማህበሩ በሚከተለው መልኩ የተዋቀረ ነው።

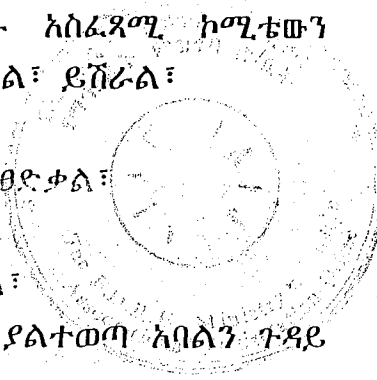


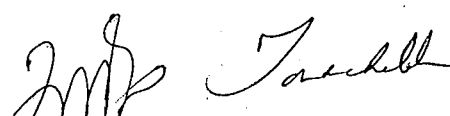
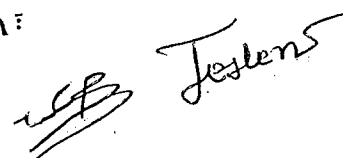

አንቀጽ አስራ አንድ

የጠቅላላው ጉባኤ ሥልጣንና ተግባር

ጠቅላላ ጉባኤው በዚህ መተዳደሪያ ደንብ አንቀጽ 5 ላይ የተጠቀሱትን አባላት የሚያካትት ሆኖ የሚከተሉት ስልጣንና ተግባሮች ይኖሩታል።

1. ጠቅላላ ጉባኤው የማህበሩ የበላይ አካል ነው፤
2. የስራ አስፈጻሚ ኮሚቴ አባላትን፣ የጉባኤውንና የስራ አስፈጻሚ ኮሚቴውን ሰብሳቢ፣ ምክትል ሰብሳቢ፣ ገንዘብ ያዥ እና ጸሀፊ ይመርጣል፣ ይሸራል፤
3. በማህበሩ የፖሊሲ አቅጣጫ ላይ ውሳኔ ይሰጣል፤
4. ዓመታዊ የሥራ ፕሮግራምን በመመርመር ዕቅድና በጀት ያፀድቃል፤
5. ዓመታዊ የሥራና የኦፕሬሽን ሪፖርት መርምሮ ያፀድቃል፤
6. የማህበሩ አባል ለመሆን በቀረበው ጥያቄ ላይ ውሳኔ ይሰጣል፤
7. በዚህ መተዳደሪያ ደንብ በተገለጸው መሠረት ግዴታውን ያልተወጣ አባልን ጉዳይ መርምሮ ከአባልነት እንዲሰረዝ ይወስናል፤
8. ስራ አስፈጻሚ ኮሚቴው የሚያቀርበውን የሥራ አፈጻጸም ሪፖርት በማዳመጥ ማህበሩ የተቋቋመበትን ዓላማና የተነደፉ መርሃ ግብሮች ተግባራዊ መሆን አለመሆናቸውን ያረጋግጣል።
9. መተዳደሪያ ደንቡን ያሻሽላል፤



- 10. የማህበሩን ዋና መሥሪያ ቤት በሚለወጥበት እና ቅርንጫፍ ጽ/ቤቶች በሚከፈቱበት ሁኔታ ላይ ይወሰናል፤
- 11. የማህበሩን ሂሳብ በውጭ ኮሚተር እንዲመረመር ያደርጋል፤
- 12. በማህበሩ መፍረስ ላይ ውሳኔ ይሰጣል፤
- 13. ለሌላ የማህበሩ አመራር አካል ያልተሰጡ ጉዳዮችን ይወስናል፤
- 14. ጠቅላላ ጉባኤው መሥራች አባላትን፣ የቦርድ አባላትንና ለጠቅላላ ጉባኤው ማመልከቻ አቅርበው ተቀባይነት ያገኙ አባላትን ያካትታል።

አንቀጽ አሥራ ሁለት

የጠቅላላ ጉባኤው አመራር አካላት ሥልጣንና ተግባር

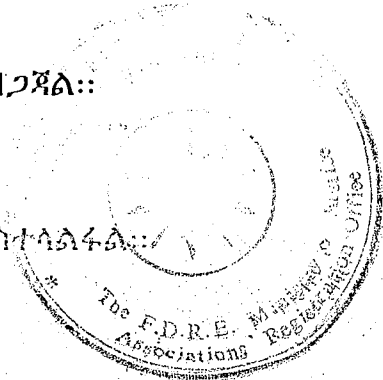
ጠቅላላው ጉባኤው ስብሰባ እና ፀሐፊ የሚኖረው ሲሆን ሥልጣንና ተግባራቸውም የሚከተለው ነው።

1. የጠቅላላ ጉባኤው ስብሰባ፤

- ሀ. የጉባኤውን ስብሰባ በሊቀመንበርነት ይመራል፤
- ለ. ጠቅላላ ጉባኤው የሚያወጣቸው ደንቦችና የሚሰጣቸው ውሳኔዎች በትክክል ሥራ ላይ መዋላቸውን ይከታተላል፤
- ሐ. ጉባኤው ያፀደቃቸው የሥራና የኦዲት ሪፖርት ለሚመለከታቸው መንግስታዊ አካላትና ዕርዳታ ለጋሾች(Donors) እንዲደርሱ ያደርጋል፤
- መ. ለጉባኤው የሚቀርቡ ጉዳዮችን ቅደም ተከተል በማውጣት ለውይይት እንዲቀርቡ ለፀሐፊው በአጀንዳነት ያስይዛል።

2. ፀሐፊው

- ሀ. ከስብሰባው ጋር በመሆን ለጉባኤው አጀንዳዎችን ያዘጋጃል።
- ለ. የጉባኤውን ስብሰባ ቃለ ጉባኤ ይይዛል፤
- ሐ. የጉባኤውን ሰነድ ይይዛል፤
- መ. የጉባኤውን ውሳኔዎች ለሚመለከታቸው አካላት ያስተላልፋል።



አንቀጽ አሥራ ሶስት

የጠቅላላ ጉባኤው የስብሰባ፣ የምርጫና የውሳኔ አስጣጥ ሥነ - ሥርዓት

- 1. የጠቅላላ ጉባኤው መደበኛ ስብሰባ በዓመት አንድ ጊዜ የሚካሄድ ሆኖ አስቸኳይ ጉዳዮች ሲያጋጥሙ አስቸኳይ ስብሰባ ሊጠራ ይችላል።
- 2. ከማህበሩ አባላት 10% በላይ በሚሆኑ ጥያቄ የጉባኤው አስቸኳይ ስብሰባ ሊጠራ ይችላል።




5

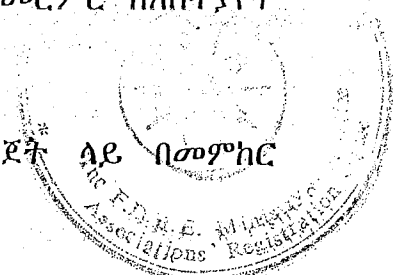
3. ጉባዔው ምርጫ ሲያደርግ ምልዓተ ጉባዔው እንደተሟላ ሦስት የአስመራጭ ኮሚቴ አባላት ተመርጠው ምርጫው እንዲካሄድ ያደርጋሉ፤
4. አስመራጭ ኮሚቴው ከሁሉ አስቀድሞ የምርጫ መመዘኛዎች በጉባዔው እንዲወሰኑ አድርጎ ምርጫውን ያስፈጽማል።
5. የማህበሩ መደበኛ አባላት 51% ሲገኙ ምልዓተ ጉባዔ ይሆናል፤ ይህ ሳይሆን ቀርቶ ሁለተኛ ጥሪ አስፈላጊ ሆኖ ሲገኝ በአግባቡ ለአባላት መድረሱ ሲረጋገጥ አባላት በተገኙበት በጥሪው ላይ በተገለጸው አጀንዳ ላይ ብቻ ውሳኔ ሊሰጥ ይችላል።
6. የአባላት ቁጥር ከመብዛታቸው የተነሳ የማህበሩን አባላት በሙሉ መሰብሰብ ካልተቻለ በውክልና መሰብሰብ ይቻላል። የአወካክሉ ስርዓት በማህበሩ የውስጥ ደንብ ይወስናል።
7. የጉባዔው ውሳኔዎች የሚተላለፉት በስብሰባው በተገኙ አባላት ድምፅ ብልጫ ሆኖ እኩል ድምፅ ሲኖር ሰብሳቢው የደገፈው ሃሳብ ተፈጻሚ ይሆናል።


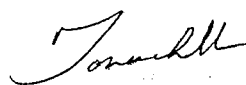


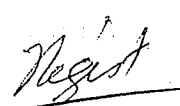
አንቀጽ አስራ አራት

የሥራ አስፈጻሚ ኮሚቴ ሥልጣንና ተግባር

የሥራ ስራ አስፈጻሚ ኮሚቴ ተጠሪነቱ ለጠቅላላ ጉባዔው ሆኖ የሚከተሉት ሥልጣንና ተግባሮች ይኖሩታል።

1. በጠቅላላ ጉባኤ የሚሰጡ ውሳኔዎችንና የሚወጡ እቅዶች ተግባራዊ መደረጋቸውን ይቆጣጠራል፤ ይከታተላል፤
2. የማኅበሩን ፖሊሲ ለማውጣት ወይም ለማሻሻል የማኅበሩ ማኔጅመንት የሚያቀርባቸውን ሀሳቦች ተቀብሎና አስፈላጊም ሲሆን የራሱን አስተያየት ጨምሮ ውሳኔ እንዲሰጥባቸው ለጉባዔው ያቀርባል፤
3. በገንዘብ ወይም በማቴሪያል ለማኅበሩ ኘርግራም ማስፈጸሚያ የሚሆኑ ገቢዎች መኖራቸውን ያረጋግጣል። ዕርዳታ የሚገኝበትንም መንገድ ይቀይሳል፤
4. ቅርንጫፍ ጽ/ቤቶች አስፈላጊ በሆኑ አካባቢዎች እንዲከፈቱ ለጠቅላላ ጉባዔ አቅርቦ ያስወስናል።
5. ከማኅበሩ ማኔጅመንት የሚቀርቡ የሥራ አፈፃፀም ሪፖርቶች መርምሮ ከአስተያየት ጋር ለጠቅላላ ጉባዔ ያቀርባል፤
6. ሠራተኞች የሚቀጠሩበትና የሚተዳደሩበት ደንብ ያወጣል።
7. በማኅበሩ አጭር ፣ የመካከለኛና የረጅም ጊዜ ዕቅድና በጀት ለጠቅላላው ጉባዔ ለውሳኔ ያቀርባል፤
8. የሥራ አመራር መተዳደሪያ ደንብ ያወጣል፤
9. አስቸኳይ የጠቅላላ ጉባዔው ስብሰባ የሚጠራበት ምክንያት ሲያጋጥም ጥሪ እንዲደረግ ይወስናል።



አንቀጽ አስራ አምስት

የሥራ አስፈጻሚ ኮሚቴ አባላት

- 1. የሥራ አስፈጻሚ ኮሚቴ 11 አባላት ይኖሩታል።
- 2. የሥራ አስፈጻሚ ኮሚቴው ሰብሳቢና ምክትል ሰብሳቢ በጠቅላላ ጉባኤው የተመረጡት ፕሬዝዳንትና ምክትል ፕሬዝዳንት ናቸው፤
- 3. የሥራ አስፈጻሚ ኮሚቴው ጸሀፊውን በፕሬዝዳንቱ ስቅራቤነት ይመርጣል።

4. ሰብሳቢው፣

- ሀ. የጠቅላላ ጉባኤውንና የሥራ አስፈጻሚ ኮሚቴውን ስብሰባ በሊቀመንበርነት ይመራል፤
- ለ. የሥራ አስፈጻሚ ኮሚቴው በስብሰባው ያሳለፋቸውን ውሳኔዎች ለጠቅላላ ጉባኤ ያቀርባል፤
- ሐ. ሥራ አስፈጻሚ ኮሚቴው የሚያወጣቸውን የማኅበሩን ፖሊሲዎች ስትራቴጂዎችና መመሪያዎች ለጠቅላላ ጉባኤው አቅርቦ ያጸድቃል፤
- መ. ለጠቅላላ ጉባኤውና ለሥራ አስፈጻሚ ኮሚቴው ከተሰጠው ሥልጣን አንጻር ተጠሪነቱ ለጉባኤውና ለኮሚቴው ይሆናል።
- ሠ. ጠቅላላ ጉባኤውና ሥራ አስፈጻሚ ኮሚቴው የሚያሳልፏቸው ውሳኔዎች ተግባራዊ እንዲሆኑ ሴክራታሪያቱንና የሥራ ክፍሎችን ያዛል።
- ረ. የማኅበሩን ሴክራታሪያት የሥራ አፈጻጸም በቅርብ ይከታተላል፤
- ሰ. ጉባኤው ያፀደቀውን የሥራ አፈጻጸምና የኦዲት ሪፖርት ለሚመለከታቸው እንዲልክ ሴክራታሪያቱን ያዛል።
- ሸ. ከኦዲት ሪፖርት ውጭ ያሉትን ዓመታዊ ሪፖርቶች በጉባኤው መደበኛ ስብሰባ ያቀርባል።




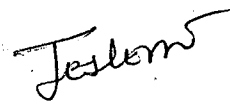
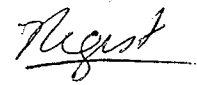
5. ምክትል ሰብሳቢው ፣

- ሀ/ ሰብሳቢው በሌለ ጊዜ ሰብሳቢውን ተክቶ ይሠራል፤
- ለ/ በሰብሳቢው የሚሰጠውን ተጨማሪ ሥራ ያከናውናል።

6. ፀሐፊው ፣

- ሀ. ተጠሪነቱ ለሥራ አስፈጻሚ ኮሚቴው ነው፤
- ለ. የሥራ አስፈጻሚ ኮሚቴውን የስብሰባ አጀንዳዎች ከሰብሳቢው ጋር በመነጋገር ያዘጋጃል፤
- ሐ. የሥራ አስፈጻሚ ኮሚቴውን ስብሰባ ቃለ ጉባኤ ይይዛል፤
- መ. የሥራ አስፈጻሚ ኮሚቴውን ጽ/ቤት መዛግብትና ሠነድ ይጠብቃል።








7

አንቀጽ አሥራ ስድስት

የሥራ አስፈጻሚ ኮሚቴው የሥራ ስራ ስርዓት ለማረጋገጥ ለሥራ አስፈጻሚ ኮሚቴው የሥራ ስራ ስርዓት ለማረጋገጥ ለሥራ አስፈጻሚ ኮሚቴው የሥራ ስራ ስርዓት ለማረጋገጥ

አስፈጻሚ ኮሚቴው አባላት የአገልግሎት ዘመን ፣

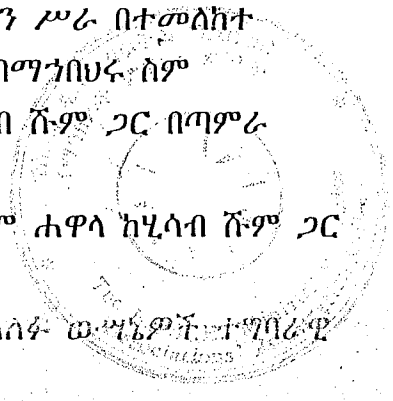
1. የሥራ አስፈጻሚ ኮሚቴው መደበኛ ስብሰባ በዓመት 2 ጊዜ የሚከናወን ሆኖ አስቸኳይ ስብሰባ የሚያስፈልግበት ምክንያት ሲኖር ልዩ ስብሰባ ሊያደርግ ይችላል ፤
2. አስቸኳይ ስብሰባ በሥራ አስፈጻሚ ኮሚቴው ሰብሳቢ ሊጠራ ይችላል፤
3. ከአባላቱ ውስጥ ከግማሽ በላይ ከተገኙ ምልዓተ ጉባዔው እንደተሟላ ይቆጠራል፤ ምልዓተ ጉባዔ ካልተሟላ ድጋሚ ለስብሰባ ጥሪ ይደረጋል። በድጋሚ በተደረገው ጥሪ ምልዓተ ጉባዔ ካልተሟላ በተገኙ አባላት ስብሰባ ሊካሄድ ይችላል ፤
4. ውሳኔዎች በድምፅ ብልጫ ይተላለፋሉ ፣ ድምፅ እኩል በሚከፈልበት ጊዜ ሰብሳቢው የደገፈው ሃሳብ ይፀናል፤
5. የሥራ አስፈጻሚ ኮሚቴው አባላት የአገልግሎት ዘመን ለ 3 ዓመት ይሆናል። ሆኖም አንድ የሥራ አስፈጻሚ ኮሚቴ አባል ከ 2 ጊዜ በላይ ሊመረጥ አይችልም፤
6. የሥራ አስፈጻሚ ኮሚቴው አባላት ያለደመወዝ በነጻ ያገለግላሉ።

አንቀጽ አሥራ ሰባት

የማኅበሩ ፕሬዝዳንት ተግባርና ኃላፊነት

የማኅበሩ ፕሬዝዳንት ተጠሪነቱ ለጠቅላላ ጉባኤውና ለሥራ አስፈጻሚ ኮሚቴው ሆኖ የሚከተሉት ሥልጣንና ተግባሮች ይኖሩታል።

1. በማናቸውም አካል ዘንድ ማኅበሩን ይወክላል፤ የማኅበሩን ሥራ በተመለከተ ማናቸውንም ጉዳዮችን ይፈጽማል፤ ውክልና ይሰጣል፤ በማኅበሩ ስም የተከፈተውን የባንክ ሂሳብ እና ቼክ ወይም ሐዋላ ከሂሳብ ሹም ጋር በጣምራ ፊርማ ያንቀሳቅሳል።
2. በማኅበሩ ስም የተከፈተውን የባንክ ሂሳብ እና ቼክ ወይም ሐዋላ ከሂሳብ ሹም ጋር በጣምራ ፊርማ ያንቀሳቅሳል።
3. ለጠቅላላ ጉባኤውና ለሥራ አስፈጻሚ ኮሚቴው የሚተላለፉ ውሳኔዎች ተግባራዊ ያደርጋል።
4. የማኅበሩን የየሶስት ወር እና ዓመታዊ የሥራ እና የፋይናንስ ሪፖርቶች አያዘጋጀ (በየሶስት ወር እና በየዓመቱ) ለሥራ አስፈጻሚ ኮሚቴው ያቀርባል።
5. የማኅበሩን ፖሊሲ በማውጣትና የበጀት እና የሥራ እቅድ በማዘጋጀት ለሥራ አስፈጻሚ ኮሚቴው ያቀርባል።
6. በመተዳደሪያ ደንቡ መሠረት ለማሕበሩ ገቢ የሚገኝበት ዘዴ ይቀይሳል። የማሕበሩን ዓላማ ከግብ ሊያደርሱ የሚችሉ ስልቶችን በመቀየስ ያስፈጽማል።



Handwritten signatures of the board members.

- 7. ሥራ አስፈጻሚ ኮሚቴው በሚያወጣው የአስተዳደር ደንብ መሠረት ሠራተኞችን ይቀጥራል፣ ያሰናብታል፣ ደመወዛቸውንና አበላቸውን ይወስናል።
- 8. ከሂሳብ ሹም እና ከገንዘብ ያገዥ የሥራ ሐላፊነቶች ውጪ ያሉትን የሥራ ድልድሎች በማዘጋጀት ለሥራ አስፈጻሚ ኮሚቴው ያቀርባል።
- 9. ሂሳብ ሹምና ገንዘብ ያገዥን ጨምሮ፣ በሥራ የሚገኙትን ሠራተኞች እያስተባበረ፣ እየተከታተለ እና እየተቆጣጠረ የማሕበሩን የአለት ተአለት የሥራ እንቅስቃሴ ይመራል።
- 10. የማኅበሩን የሥራ እንቅስቃሴ በተመለከተ ሌሎች የማነጅመንት ውሳኔዎችን ይሰጣል።
- 11. የማሕበሩን የመተዳደሪያ ደንብ ወይም የጠቅላላ ውሳኔን በማይቃረን ሁኔታ ከሥራ አስፈጻሚ ኮሚቴው የሚሰጠትን ሌሎች ተግባራት ያከናውናል።

አንቀጽ አስራ ስምንት
የማኅበሩ ሂሳብ ሹም ተግባርና ሐላፊነት

ሂሳብ ሹም ተጠሪነቱ ለማኅበሩ ፕሬዝዳንት ሆኖ የሚከተሉት ተግባርና ሐላፊነቶች ይኖሩታል፣





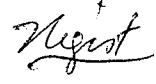
- 1. የማሕበሩን ሂሳብ ገቢና ወጪ ይቆጣጠራል ፣ በትክክል እንዲመዘግብ እና እንዲያዝ ያደርጋል።
- 2. የማሕበሩ ሂሳብ የሚንቀሳቀሰው በታወቀ የሂሳብ አሠራር ደንብ መሠረት መሆኑን ይቆጣጠራል።
- 3. የማኅበሩን የባንክ ሂሳብ እና ቼክ ሐዋላ ከሥራ አስኪያጁ ጋር በጣም ፊርማ ያንቀሳቅሳል።
- 4. የማኅበሩን የሂሳብ መዛግብትና የተለያዩ ሠነዶች በጥንቃቄ እንዲያዙ ያደርጋል።

አንቀጽ አሥራ ዘጠኝ
የማኅበሩ ገንዘብ ያዥ ተግባርና ኃላፊነት

ገንዘብ ያዥ ተጠሪነቱ ለማኅበሩ ፕሬዝዳንት ሆኖ የሚከተሉትን ተግባርና ኃላፊነቶች ይኖሩታል፣

- 1. የማኅበሩን ገቢዎች በሕጋዊ ደረሰኝ ይሰበስባል፣
- 2. የተሰበሰበውን ገንዘብ ባንክ ገቢ ያደርጋል ገቢ ያደረገበትን ደረሰኝ በጥንቃቄ ያስቀምጣል፣
- 3. ለሥራ ማስኬጃና ለማኅበሩ ጥቃቅን ወጭዎች የሚሆን ከብር 500 ያልበልጠ መጠባበቂያ ገንዘብ ይይዛል።
- 4. ከሂሳብ ሹሙ ጋር የወጪና የገቢ ሂሳብ በየወሩ ያመሳክራል፣



5. የማህበሩን ቼክ ይይዛል፤
6. በጣምራ ፊርማ /በሂሳብ ሹሙና በሥራ አስኪያጁ /ሊታዘዝ ወጪ ያደርጋል።

አንቀጽ ሀያ

የአዲተር ኃላፊነትና ተግባር

አዲተሩ ተጠሪነቱ ለጠቅላላው ጉባዔ ሆኖ ፣ የሚከተሉትን ሥልጣንና ተግባሮች ይኖሩታል።

1. የማኅበሩን የገንዘብና የንብረት አስተዳደር ትክክለኛነት ይቆጣጠራል።
2. የማኅበሩ የሥራ እንቅስቃሴ በዚህ መተዳደሪያ ደንብ መሠረት መካሄዱን ያረጋግጣል፤
3. ዓመታዊ የአዲት ሪፖርት ለጠቅላላ ጉባዔው ያቀርባል።

አንቀጽ ሃያ አንድ

የማኅበሩ የገቢ ምንጭ

የማኅበሩ የገቢ ምንጮች ፣

1. የአባላት መዋጮ
2. ከአርዳታ ሰጪዎች የሚገኝ ገንዘብ ወይም ንብረት ይሆናል።

አንቀጽ ሃያ ሁለት

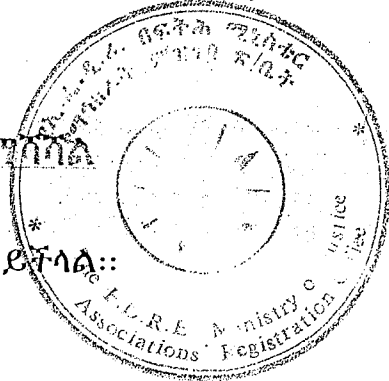
የበጀት አመት

የማኅበሩ የበጀት አመት እ.ኤ.አ. ከ ጃንዋሪ አንድ ቀን እስከ ዲሴምበር 31 ቀን ይሆናል።

አንቀጽ ሃያ ሶስት

የማኅበሩን መተዳደሪያ ደንብ ስለማሻሻል

ይህ መተዳደሪያ ደንብ በጠቅላላ ጉባዔው 3/4ኛ ድምፅ ሊሻሻል ይችላል።



Handwritten signature: J. J. J.

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አንቀጽ 4ያ አራት
ስለማገበሩ መፍረስ

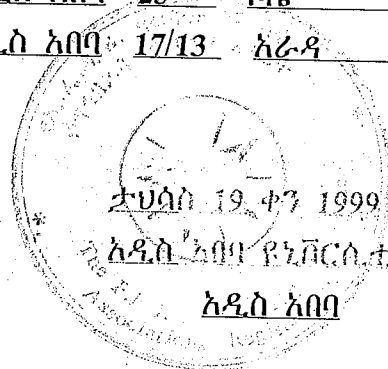
1. የጠቅላላ ጉባዔ አባላት ማገበሩ እንዲፈረስ በ3/4ኛ ድምፅ ከወሰኑ፡
2. ማገበሩ የተቋቋመበትን ዓላማ ከፍጻሜ ሲያደርስ ወይም ከፍጻሜ ለማድረስ ሳይቻለው ሲቀር ሊፈረስ ይችላል፡፡
3. ማገበሩ በሚፈረስበት ጊዜ ንብረቱ ተመሳሳይ ዓላማ ላለው መንግስታዊ ያልሆነ ድርጅት ወይም ለመንግስት ይተላለፋል፡፡

አንቀጽ 4ያ አምስት
መተዳደሪያ ደንቡ የሚፀናበት ጊዜ

ይህ መተዳደሪያ ደንብ ሥልጣኑ በሚፈቅድለት የመንግስት አካል ከፀደቀበት ቀን ጀምሮ የፀና ይሆናል፡፡

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| 1 ዶ/ር ተመቸኝ እንግዳ | አዲስ አበባ | 20 | የካ | | <i>[Signature]</i> |
| 2 ዶ/ር የናስ ጨቡዴ | አዲስ አበባ | 17/18 | ቂርቆስ | 596/18 | <i>[Signature]</i> |
| 3 ዶ/ር አህመድ ሙስጠፋ | አዲስ አበባ | 18 | አዲስ ከተማ | 212 | <i>[Signature]</i> |
| 4 ዶ/ር ንግስት አስፋው | አዲስ አበባ | 23 | ቦሌ | 4/175 | <i>[Signature]</i> |
| 5 አቶ ተስፋልደት ለማ | አዲስ አበባ | 17/13 | አራዳ | 793 | <i>[Signature]</i> |



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Final Version – March 9, 2009
International Union of Pure and Applied Chemistry (IUPAC)
Division of Chemistry and the Environment (VI)

DIVISION RULES

1. The **mission** of the IUPAC Division of Chemistry and the Environment (DCE) is to provide unbiased and authoritative views on the behavior and potential impacts of chemicals in the environment and thus contribute to solving environmental problems and enhancing the quality of food on a global scale.

2. Under the Statutes, Bylaws, and policies of the Union, the Division is managed by its **Division Committee**. The Division Committee is responsible for providing oversight and strategic direction for projects, conferences and other activities within its sphere of influence. Some of the specific duties of the Division Committee are listed below:
 - Long-term, strategic planning for the Division.
 - Development of new projects, including: formal review; progress through the approval system; funding / budgets; selection and approval of project teams.
 - Review of the DCE project portfolio, including: progress with current projects; critical weaknesses in coverage; important new areas.
 - Developing and managing interdivisional projects and higher level external links (SCOPE, COCI, OECD, FAO,...).
 - Liaise with IUPAC leadership bodies (Council, Bureau, Executive Committee).
 - Establish and govern sub-committees.
 - Hold an annual planning meeting and phone conferences as necessary.

3. In accord with B4.103, the **composition** of the Division Committee is as follows:
 - (a) No more than ten (10) Titular Members (including all Officers as defined below)
 - (b) No more than six (6) Associate Members
 - (c) No more than ten (10) National Representatives

4. (a) **Titular Members** of the Division Committee are nominated and elected for a term of four years by the electorate defined in B4.103 (including DCE sub-committee members) and Bureau decisions pursuant to B4.103. Candidates for titular membership are selected by the Nominating Committee described below.
 - (b) **Associate Members** are selected by the Division Committee for a term of two years, subject to reelection for a second two-year term, as provided in B4.103.
 - (c) **National Representatives** are selected by the Division Committee on nomination by National Adhering Organizations (NAO's) for a term of two years, subject to reelection for a second two-year term, as provided in B4.103. Where appropriate, the Division Committee may provide advice to specific NAO's regarding particular areas of expertise

that are desirable to assist the work of the Division Committee.

- (d) **Interim appointments** to fill vacancies on the Division Committee occurring between meetings may be made by the Division President, after consultation with the other Division Officers, for a term ending at the end of the year in which the next General Assembly is held. Interim appointments are subject to approval by the Bureau or Executive Committee.
5. Candidates for Titular Member of the Division Committee are selected by a **Nominating Committee**, prescribed by IUPAC policy and procedures defined by the Bureau, as follows:
- (a) The nominating committee consists of five members [subject to an exception by the Bureau], with no more than two members from the existing Division Committee. The Division President will not be a member of the Nominating Committee. In general, either the Vice President or immediate Past President of the DCE will serve as chair of the Nominating Committee.
- (b) The Nominating Committee is appointed by the Division President with the concurrence of the Division Committee and the IUPAC Executive Committee.
- (c) Categories of vacancies may be established by the Division Committee if desired to ensure diversity in subject matter, geographic distribution, or other characteristics. More than one nominee for each vacancy is desirable but not required.
- (d) The Nominating Committee expects to receive nominations from the NAO's and will solicit nominations from current DCE members, sub-committees, project teams, and other external networks, organizations, and individuals as appropriate.
6. **Elections** shall be conducted by e-mail under procedures defined by the IUPAC Secretariat. With the advice of the President of the Union, Officers of the Division are elected by the Division Committee, subject to final approval by the Council. The Officers together form an Executive Committee to act for the Division Committee between meetings.
7. At any one time three (3) of the Division's Titular Members will serve as **Officers** of the Division with **terms of office** subject to limitations in B4.103, as follows:
- (a) The **Division President** (DP) is the administrative head of the Division, presides at meetings of the Division Committee, and is an *ex officio* member of all bodies of the Division. The DP serves as a member of the Bureau and is the principal representative of the Division within and outside the Union. The DP is elected to serve a 4-year term, and is not eligible for reelection to a second term.
- (b) The **Division Secretary** (DS) assists the President in carrying out the business of the Division and maintains the records of the Division. The DS serves a term of four (4) years and is eligible for reelection to a second term of four years.

and, alternatively

- (c) The immediate **Past President** (PP) acts for the President in his absence and assists the President as requested. The PP shall assume the office of Division President in the event the President being unable to perform the functions of that office. The outgoing DP automatically assumes the role of PP for a 2-year term.

or

- (d) The **Vice President** (VP) (President Elect) acts for the President in his absence and assists the President as requested. The VP shall assume the office of Division President following expiration of the President's term or in the event of the President is unable to perform the functions of that office. The VP is normally elected to serve a 2-year term to follow expiration of the term of the PP.

The terms of the VP and PP are contiguous and do not overlap, so at any one time there will be either the VP or the PP.

8. The Division Committee may establish and the Division President may appoint **subsidiary bodies**, such as subcommittees, working parties and advisory groups, which will all have the status of Division subcommittees, as described in S10.6. The terms of reference or charge to each group, as well as its lifetime, shall be established by the Division Committee. The Division Committee and Division President will exercise responsibility and oversight over all bodies created.
9. The work of the committee will primarily be accomplished by task groups appointed to carry out specific **projects** under general IUPAC policies for the conduct of projects. The general operating principles for projects operated under auspices of the DCE are listed below:
- Unsolicited project proposals or proposals responding to a specific DCE call for proposals are received and logged into the project system by the IUPAC Secretariat.
 - Following concurrence by the DP, copies of project proposals are distributed by the IUPAC Secretariat to members of the Division Committee and to external peer reviewers for review and comment.
 - Comments are collected for the DP who facilitates adoption of a Divisional recommendation for disposition of the project proposal as follows (to be communicated to the proposal submitter via the IUPAC Secretariat):
 - Reject the proposal and/or refer to the proposal to another IUPAC body
 - Approve the proposal as written
 - Approve the proposal with certain restrictions or caveats (e.g., reduced budget, submission of a slightly revised proposal)
 - Recommend significant revisions to the proposal and solicit submission of a revised proposal for further review

- In all cases, projects may be undertaken which involve interdivisional cooperation
- In approving a project proposal for funding, the Division Committee has multiple options available which may be used in combination:
 - Fund the project from existing Divisional funds from the biennium
 - Fund the project from royalties accumulated to the Division's credit via the Wiley Book Series or other book series
 - Seek cost-sharing with other IUPAC Divisions
 - Seek funding or cost-sharing with the IUPAC Project Committee
- The Division Committee will monitor project progress with the task group leader on an annual or biannual basis through use of the project report form.
- The Division Committee reserves the right to reassign task group leaders or cancel projects which are not making suitable progress toward timely completion.
- Prior to submission of project reports, books or other final project outcomes for publication by the task group leader, the approval of the DP must be obtained.

10. These Rules may be **amended** by the Division Committee, subject to approval by the Council.

IUPAC Division of Chemistry & Human Health (DVII) Operating Procedures

Revised February 2009

This text outlines the basic rules of the Division. Current operating procedures and terms of reference of Subcommittees are given in a series of attached **Notes** and **Appendices**. The operating procedures and Subcommittee structure described in these Notes are current Division VII practice as of January 2009, and are expected to evolve through discussion at future Division meetings.

1. Mission

The mission of Division VII is to promote pure and applied chemistry in the service of human health and well-being.

2. Management

Under the Statutes, Bylaws, and Policies of the Union, the Division is managed by its Division Committee. S10 and B4.1 and their subsections are particularly relevant. The Division Committee is responsible for initiating and managing scientific projects, symposia and other activities within its area of responsibility and for cooperating with other Divisions and Standing Committees in initiating and managing interdisciplinary projects, symposia and other activities. (Notes 1-4)

3. Composition

In accord with B4.103, the composition of the Division Committee is as follows:

- (a) No more than 10 Titular Members (including all Officers as defined below)
- (b) No more than six Associate Members
- (c) No more than 10 National Representatives

(Note 5)

4. Membership and appointments

- (a) Titular Members of the Division Committee are nominated and elected for a term of four years by the electorate defined in B4.103 and Bureau decisions pursuant to B4.103. Candidates for titular membership are nominated by the Nominating Committee described below.

- (b) Associate Members may be elected by the Division Committee for a term of two years, subject to reelection for a second two-year term, as provided in B4.103.
- (c) National Representatives may be elected by the Division Committee on Nomination by National Adhering Organizations for a term of two years, subject to reelection for a second two-year term, as provided in B4.103.
- (d) Interim appointments to fill vacancies on the Division Committee occurring between meetings may be made by the Division President, after consultation with the other Division Officers, for a term ending at the end of the year in which the next General Assembly is held. Interim appointments are subject to approval by the Bureau or Executive Committee.

(Note 6)

5. Nominations

Candidates for Titular Member of the Division Committee are named by a Nominating Committee, prescribed by IUPAC policy and procedures defined by the Bureau, as follows:

- (a) The nominating committee consists of five members (subject to an exception by the Bureau), with no more than two members from the existing Division Committee and the other three chosen from outside IUPAC based on the breadth of their expertise. The Division President will not be a member of the Nominating Committee.
- (b) The Nominating Committee is appointed by the Division President with the concurrence of the IUPAC Executive Committee.
- (c) Categories of vacancies may be established by the Division Committee if desired, in order to ensure diversity in subject matter, geographic distribution, or other characteristics. More than one nominee for each vacancy is desirable but not mandatory.

6. Elections

Elections shall be conducted by e-mail under procedures defined by the IUPAC Secretariat.

7. Officers

The Officers of the Division are as follows (Note 7):

- (a) The President is the administrative head of the Division, presides at meetings of the Division Committee, and is an *ex officio* member of all bodies of the Division. The President serves as a member of the Bureau and is the principal representative of the Division within and outside the Union.
- (b) The Vice President (Immediate Past President or President-elect) acts for the President in

his or her absence and assists the President as requested. The Vice President shall assume the office of Division President in the event of the President being unable to perform the functions of that office, without prejudice to the forthcoming period of office as President, subject to the terms of B4.103. (Note 8)

- (c) The Secretary assists the President in carrying out the business of the Division and maintains the records of the Division.

8. Executive and term of office

With the advice of the President of the Union, Officers of the Division are elected by the Division Committee, subject to final approval by the Council. The Officers together form an Executive Committee to act for the Division Committee between meetings. Subject to limitations in B4.103, the terms of office are as follows:

- (a) The President serves a term of four years. The President-elect and Immediate Past President each serve a term of two years. These positions are not subject to reelection, unless approved by the Bureau, and providing the term of office does not exceed four years.
- (b) The Secretary serves a term of four years and is eligible for reelection to a second term of four years, if reelected as a Titular Member.

9. Subsidiary bodies

- (a) The Division Committee may establish and the Division President may appoint subsidiary bodies, such as subcommittees, working parties and advisory groups, which will all have the status of Division subcommittees, as described in S10.6. The terms of reference or charge to each group, as well as its lifetime, shall be established by the Division Committee. Task groups will be formed to carry out specific projects under general IUPAC policies for the conduct of projects. (Notes 9, 10)
- (b) The Division Committee may propose to the Bureau the establishment of Commissions, with terms of reference and lifetimes, under the provisions of B4.301.
- (c) The Division Committee and Division President will exercise responsibility and oversight over all bodies created under parts (a) and (b).

10. Amendments

These Rules may be amended by the Division Committee, subject to approval by the Council.

List of Appendices

Appendix 1 - Terms of Reference for '*IUPAC DVII Sponsorship*'

Appendix 2 – Terms of Reference and guidelines for the '*DVII Emeritus Fellows program*'

Appendix 3 – Procedures for removal of non-performing members

Appendix 4 – Terms of reference for the SC on *Medicinal Chemistry and Drug Development*

Appendix 5 – Terms of reference for the SC on *Nomenclature, Properties and Units in Laboratory Medicine*

Appendix 6 – Terms of reference for the SC on *Toxicology and Risk Assessment*

Appendix 7 - Terms of reference for the SC on *Public Relations and Elections*

Notes

Abbreviations: Associate Member (AM), Division Committee (DC), Division President (DP), Division VII (DVII), Emeritus Fellow (EF), National Representative (NR), Past President (PP), President Elect (PE), Subcommittee Chair (SCC), Subcommittee (SC), Titular Member (TM), Vice President (VP)

(Abbreviations of the SCs are given in Note 9.)

Note 1. It is the responsibility of the DC is to disburse the biennial funding allotted by the IUPAC for support of Division-associated IUPAC Projects and Division operating expenses. Toward this end, the DC facilitates the initiation of new Projects, monitors the management of ongoing Projects, and participates in processing Project outcomes.

Note 2. In addition to its Project-related activities, the DC makes recommendations to the IUPAC with regard to IUPAC Sponsorship of scientific meetings in general, and in addition may provide '*IUPAC DVII Endorsement*' directly to selected meetings that are relevant to its specific areas of interest.

Terms of Reference for '*IUPAC DVII Endorsement*' – ***Appendix 1.***

Note 3. The DC also awards '*IUPAC DVII Emeritus Fellow*' status to selected individuals. Terms of Reference for the '*DVII Emeritus Fellows program*' – ***Appendix 2.***

Note 4. The DC engages in fund raising activities in line with its stated mission.

Note 5. In addition to the TMs, AMs, NRs, and SCCs, the DC may invite ad hoc participation of selected individuals for expert input during discussion or decision-making responsibilities during its deliberations, but these individuals will not be eligible to vote on any Division issues. All members of the DC are eligible to vote in elections, but Task Group members in general are not.

Note 6. Barring unavoidable circumstances or critical scheduling conflicts, TMs are expected to attend all DC meetings and to participate fully in DC activities as appropriate, including reviews of Projects and Applications for IUPAC Sponsorship. Pending the availability of Divisional funds to assist with travel expenses, and barring unavoidable circumstances or critical scheduling conflicts, AMs and SCCs are likewise expected to participate fully in DC activities as appropriate. While it is hoped that NRs will also be able to attend the DC meetings and to actively engage in various DC activities, it is appreciated that such participation may be difficult without a funding line available to assist in covering the associated expenses. However, NRs are expected to be conversant on all DC topics and to offer input as appropriate by e-mail correspondence. It is current DVII policy to fund attendance of SCCs at all official Division meetings.

Procedures for removal of non-performing members – *Appendix 3*.

Note 7. Selection of Officers will generally be undertaken at a DC meeting, with any TMs, AMs, and NRs who are present eligible to participate. If there is no clear consensus, a vote would be taken among the TMs, AMs, and NRs. The candidates for VP/PE and Secretary would be absent during this vote.

Note 8. Currently the role of Vice-President is filled by the immediate Past President (PP) having a two-year term in the first two years of a DP's term, and a President-elect (PE) having a two-year term in the last two years of a DP's term. The positions of DP, PE, and Secretary are filled by existing TMs, and the PP also remains as one of the 10 TMs.

Note 9. Current Subcommittees (SC) of DVII are as follows:

- (a) *Medicinal Chemistry and Drug Development* (MCDD);
- (b) *Nomenclature, Properties and Units in Laboratory Medicine* (NPU-LM);
- (c) *Toxicology and Risk Assessment* (TRA); and,
- (d) *Public Relations and Elections* (PRE).

Terms of reference for the SCs are found in *Appendices 4-7*.

Note 10. The Subcommittee Chairs (SCCs) are selected by their respective constituencies, with the exception of the PRE SCC who will be selected directly by the DC. While not mandated, it is recommended that these posts are reviewed by the SC at least every four years, and that SCCs do not serve for consecutive terms longer than ten years. Recommendations for these posts are forwarded to the DC for final approval whenever such selections are undertaken.

Appendix 1 - Terms of Reference for 'IUPAC DVII Sponsorship'

According to Union procedures, the Division routinely participates in assessing meetings and workshops that have made formal requests for IUPAC Support/Sponsorship. This is mainly done by having the DP look-over the submitted form and respond directly to the Secretariat, or by having the DP forward the form to the appropriate DVII SCC so that they can respond on the Division's behalf directly to the Secretariat, with all such correspondence also copied to the DVII Secretary for incorporation into the Division's records.

Separate from the above, however, the Division will lend specific IUPAC DVII Endorsement to certain events according to the following procedure. Any Division Committee Member (TM, AM, NR) or SCC who regards this type of sponsorship to be of mutual value to a specific event that he/she has become aware of, should propose it to the Division Officers [DP, VP (PE or PP), and Secretary) with a brief description and justification. The Officers, in turn, will offer internal comments and then the DP will make a quick decision on behalf of the Division.

Divisional Endorsement does not imply any financial aid or assistance in participation. It is an endorsement of the scientific quality of the meeting.

Three provisos are inherent prior to affording such endorsement:

- (1) The venue in question has not been, or is not in the process of being, rejected by the IUPAC formalized process due to any technical or ethical issues; and,
- (2) All electronic and hardcopy references to the sponsorship very specifically read "*IUPAC Division VII Chemistry and Human Health*" and do not just read "*IUPAC.*" Responsibility for insuring that this specific phraseology occurs is undertaken by the DC member who initially requested the endorsement.
- (3) There are obligations on the part of the proposing DC member or SCC to represent IUPAC and the Division adequately, and on the part of the meeting organizers to facilitate this representation.

Appendix 2 – Terms of Reference and guidelines for the ‘*DVII Emeritus Fellows program*’

This category of membership will be bestowed upon meritorious individuals who have *earned by service* a special recognition *upon their retirement* (departure) from one or more DVII IUPAC administrative posts or from a multiple of key DVII IUPAC Project roles. While DVII Emeritus Fellow (EF) membership will typically be granted to individuals who have reached a point in their careers where they are beginning to diminish their involvement in professional activities, this is not a requirement or an expectation of the award. Thus, EFs can still hold future IUPAC posts and can participate in future IUPAC Projects. At the very least, it is expected that the accumulated experience of an EF may be able to be tapped in an advisory or consulting manner during future Divisional or IUPAC initiatives.

Privileges

- Life-long membership within IUPAC without payment of annual dues; Standard membership benefits which presently include a subscription to Chemistry International, and discounted purchase rates for IUPAC books and monographs.
- A standing invitation to attend Division and Subcommittee Meetings appropriate to the EF's technical background.
- The possibility to receive a reimbursement for a portion of travel costs incurred while attending a Divisional Meeting, particularly when the meeting is associated with an IUPAC General Assembly and Chemistry Congress. This possibility and the level of actual reimbursement will be determined by the Division Committee (DC) prior to such meetings, taking into account the status of the Division's budget at that point in time, the anticipated overall costs for the meeting, and the number of EFs who have expressed a desire to attend.

Obligations

- Annual renewal of membership even though there is no fee; immediate update of contact information upon any change.
- Willingness to serve as an advisor or consultant, according to the EF's own schedule, if called upon by the Division or by any other IUPAC body.

Selection and Appointment

1. Recommendation of individuals for EF membership can be put forward by any DC member (TM, AM, NR or SCC) after using whatever mechanisms they choose to identify candidates within their own ranks. However, candidates must be made aware of their selection for such and, in turn, agree to the aforementioned obligations should they be appointed.
2. Recommendation packets will be forwarded via e-mail attachment to the Division President and Secretary. Packets will include (a) a one-page summary of why the candidate is meritorious of EF status, and (b) the curriculum vitae of the candidate.

3. Nomination packets will then be forwarded to the entire DC by the Division President and Secretary.
4. Consideration of nominees will be undertaken annually during a DC meeting.
5. Notification of the outcome will be provided to each candidate by the President. Only the list of appointed EFs will appear in the public record.

Numbers of Emeritus Fellows

The total number of EFs will not be capped. However, in order to preserve the meritorious nature intended for this prestigious category of IUPAC DVII membership, no more than three such awards will be bestowed each Biennium.

Appendix 3 – Procedures for removal of non-performing members

DC members who are unable to perform the expected duties and/or who do not participate at the levels expected for their particular type of membership, will be designated as '*non-performing members*.' The two, most common examples of non-performance that have arisen previously are failure to respond to e-mail communications, and failure of TMs to attend scheduled meetings. Thus, these two areas, in particular, are further described below relative to prompting a need to remedy the situation at the DC level:

- (1) Failure to respond to e-mails after three months, assuming that additional modes of contact (e.g., telephone, FAX) have also been attempted subsequent to having e-mails sent twice (address verified to be correct by the Secretariat), and where these modes of communication were attempted over the course of at least one month; and,
- (2) Failure of TMs to attend two consecutive DC meetings without having a significant scheduling conflict, and likewise for AMs, NRs and SCCs when funding is being made available to assist them with their travel expenses.

Remediation

The President will provide a brief summary to the DC, TMs and SCCs indicating why there is a need to place a particular individual into the category of a non-performing member. If there is a consensus among this group, then this same summary will be forwarded to the Secretariat. If no objections are raised by the Secretariat, then a written letter from the DVII President will be sent to the individual indicating that his or her role on the DC is about to be terminated unless undue circumstances for their lack of performance can be cited in a reply letter that should be returned to the DC President within a one-month time period.

Unless such a reply letter is received, termination will occur automatically and the DC will undertake an interim appointment, or will become free to add a slot to its next membership ballot should an appropriate election time-point be drawing near.

Appendix 4 – Terms of reference for the SC on *Medicinal Chemistry and Drug Development (MCDD)*

Composition and Terms of Office:

- (i) Open to those members of Division VII and other chemists (who may be co-opted) who are interested in medicinal chemistry and drug development.
- (ii) Activities discussed at meetings chaired by a designated Chairperson and minuted by a designated Secretary, one of whom will also invite the attendees. The minutes to be agreed by the Subcommittee and made available for display on the IUPAC web site.

Terms of Reference:

- (i) To coordinate projects which have been approved by the Division VII Committee and that relate to medicinal chemistry and drug development.
- (ii) To provide a forum for discussing the information content, progress, and publicity of projects identified under (i) above.
- (iii) To provide a forum for initiating new project submissions in the subject area of drug discovery and drug development that are considered to be suitable activities for Division VII.
- (iv) To administer the publicity for, selection of the awardee and presentation of, the IUPAC-Richter Prize in Medicinal Chemistry for the years 2006 to 2014 (or later if extended).
- (v) To report to the Division VII President and the Division Committee on items (i) to (iv) above.
- (vi) To provide a connection with other drug discovery organizations such as the European Federation of Medicinal Chemistry (EFMC), the Asian Federation of Medicinal Chemistry (AFMC) and the ACS Division of Medicinal Chemistry.
- (vii) To provide an opportunity for IUPAC interaction with chemists in the Pharmaceutical Industry and academic medicinal chemists worldwide.
- (viii) To broaden the activities of the Division by providing opportunities for other organizations involved with pharmaceutical research to work together with Division VII members.
- (ix) To offer advice to the Division President and the Division Committee on matters concerning medicinal chemistry and drug development and the pharmaceutical industry.

Meetings:

Meetings will normally be held once or twice a year, preferably juxtaposed to a major medicinal chemistry symposium or at an IUPAC General Assembly at a location which alternates between the continents (e.g., America, Europe, Asia).

Appendix 5 – Terms of reference for the SC on *Nomenclature, Properties and Units in Laboratory Medicine (NPU-LM)*

Composition and Terms of Office:

- (i) Open to those members of Division VII and other chemists (who may be co-opted) who are interested in nomenclature for properties and units (NPU), and primarily to those participating in Division VII projects as Task Group Members or Task Group Chairs.
- (ii) Activities discussed at meetings chaired by a designated Chairperson and minuted by a designated Secretary who will also invite the attendees. The minutes to be agreed upon by the Subcommittee, submitted to the Division Committee and made available for display on the IUPAC website.

Terms of Reference:

- (i) To make recommendations on NPU for reporting clinical laboratory data that conform to or adapt current standards of authoritative organizations, and that will improve their utilization for health care.
- (ii) To continuously provide advice for the management, updating and publishing of NPU terminology.
- (iii) To coordinate projects which have been approved by the Division VII Committee and that relate to NPU.
- (iv) To provide a forum for discussing the information content and progress of items (ii) and (iii) above.
- (v) To provide a forum for initiating new project submissions in the subject area of NPU that are considered to be suitable activities for Division VII.
- (vi) To provide a connection with other organizations concerned with NPU such as the Bureau International des Poids et Mesures (BIPM), the European Committee for Standardization (CEN) and the International Organization for Standardization (ISO), and, by extension, clinical laboratory sciences societies, such as the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC), and the *in vitro* diagnostics industry, to ensure that problems encountered by health care professionals in the area of NPU are considered by those organizations.
- (vii) To provide an opportunity for IUPAC interaction with chemists in the medicinal chemistry industry worldwide.
- (viii) To broaden the activities of the Division by providing opportunities for other organizations involved in NPU to work together with Division VII members.
- (ix) To act as a consultant group on NPU in clinical chemistry and, by extension, in the rest of clinical laboratory sciences to international scientific panels, regional and national clinical laboratory sciences organizations, editors of scientific journals, manufacturers of

clinical laboratory instrumentation and products, and to individual clinical laboratory professionals and other health care professionals.

- (x) To report and offer advice to the Division VII President and the Committee on matters concerning NPU in all its aspects (all items above).

Meetings:

Meetings will normally be held once or twice a year.

Appendix 6 – Terms of reference for the SC on *Toxicology and Risk Assessment (TRA)*

Composition and Terms of Office:

Open to those members of Division VII and other chemists (who may be co-opted) who are interested in toxicology.

Terms of Reference:

- (i) To coordinate projects that have been approved by the Division VII Committee and which relate to toxicology.
- (ii) To provide a forum for discussing the information content and progress of projects identified under (i) above.
- (iii) To provide a forum for initiating new project submissions in the subject area of toxicology that are considered to be suitable activities for Division VII.
- (iv) To provide the opportunity for coordination in both experimental and computational approaches to toxicology and risk assessment methods.
- (v) To report to the Division VII President and the Division Committee on items (i) to (iii) above.
- (vi) To provide a connection with other organizations concerned with toxicology such as the International Union of Toxicology (IUTOX), the Strategic Approach to International Chemicals Management (SAICM), the International Programme for Chemical Safety (IPCS), the World Health Organization (WHO), the Organization for Economic Cooperation and Development (OECD), the International Labour Organization (ILO), the International Union of Biochemistry and Molecular Biology (IUBMB), the International Union of Immunological Societies (IUIS), the International Union of Pharmacology (IUPHAR), the International Federation of Clinical Chemistry (IFCC), other national and international toxicology and clinical chemistry societies, and chemical industry health and safety groups.
- (vii) To provide an opportunity for IUPAC interaction with chemists in the Chemical Industry worldwide in the field of toxicology and risk assessment.
- (viii) To broaden the activities of the Division by providing opportunities for other organizations involved in toxicology to work together with Division VII members.
- (ix) To offer advice to the Division President and the Committee on matters concerning toxicology in all its aspects from the purely chemical to the protection of human health and the natural environment.

Meetings:

Meetings will normally be held at least once a year

Appendix 7 - Terms of reference for the SC on Public Relations and Elections (PRE)

The primary function of the PRE Committee is to conduct the nomination and election of new Titular Members of the Division Committee (DC), every two years.

A second function is to increase awareness of the activities of the Division among other related scientific bodies.

Terms of Reference:

- (i) To act as Chair of the Nominating Committee (NC) for the election process.
- (ii) To select four other members of the NC ensuring that two are not current members of the DC.
- (iii) To transmit to the NC the names and CVs of the National Representatives proposed by the National Adhering Organizations.
- (iv) To solicit candidates from the members of the NC.
- (v) To ensure a diversity of candidates with respect to discipline, gender and geography.
- (vi) To communicate with the proposed candidates to determine their willingness to stand for election, and to obtain their CVs.
- (vii) To provide the proposed list of candidates and their CVs to the President and the Secretariat.
- (viii) To assist the President in the communication of election results, and the formation of the DC consisting of Titular Members, Associate Members and National Representatives.
- (ix) To develop a summary of recent accomplishments of the Division, and to use this in discussions with other scientific organizations, both within and outside IUPAC.
- (x) To provide this material for use in Division presentations, and to assist other Subcommittee Chairs in developing their own presentations.