International Year of Chemistry - 2011

Chemistry – our life, our future

Prospectus

Introduction and Rationale: All known matter – gas, liquid and solid – is composed of the chemical elements or of compounds made from those elements. Humankind's understanding of the material nature of our world is grounded in our knowledge of chemistry. Indeed all living processes are controlled by chemical reactions.

The International Union of Pure and Applied Chemistry (IUPAC) and UNESCO strongly believe that *it is time to celebrate the achievements of chemistry and its contributions to the well-being of humankind*. At its General Assembly in Turin, Italy in August 2007, IUPAC unanimously approved a resolution in favor of the proclamation of 2011 as the International Year of Chemistry. Less than a year later, the UNESCO Executive Board recommended the adoption of such a resolution, submitted by Ethiopia, and which subsequently lead to the declaration in December 2008 by the UN General Assembly of 2011 as the International Year of Chemistry. During the International Year of Chemistry, planned activities will:

a. **Increase the public appreciation of chemistry in meeting world needs -** Chemistry, appropriately called the *Central Science*, is both a deeply philosophical inquiry and an applied scientific endeavor. The science of chemistry is fundamental to humanity's understanding of the world and the cosmos. Molecular transformations are central to the production of foodstuffs, medicines, fuels, metals, i.e., virtually all manufactured and extracted products. Through IYC the chemical community will publicly celebrate the art and science of chemistry, its key contributions to developing human knowledge, advancing economic progress and fostering a wholesome environment.
b. **Increase interest of young people in chemistry -** In order to ensure that first-rate minds continue to be attracted to and challenged by the central science, IYC will underscore the role of chemistry in managing natural resources sustainably. In partnership with the United Nations, the International Year of Chemistry will make a strong educational contribution toward the goals of the UN Decade of Education for Sustainable Development, particularly in the key action areas of *health* and *environment*. National and international activities carried out during the International Year will emphasize the importance of chemistry in helping to sustain the natural resource base for life.
c. **Generate enthusiasm for the creative future of chemistry** – Humanity's understanding of the world is grounded in our developing knowledge of chemistry. Creative opportunities to discover exciting new principles and applications continually appear as our understanding of molecular properties grows. Chemists will inevitably

play a key role in overcoming the challenges facing today's world, for example in helping to address the United Nations Millennium goals. A deep understanding of the science is essential for developing molecular medicine, for creating new materials and sustainable sources of food and energy.

d. **Celebrate the 100th anniversary of the Mme. Curie Nobel Prize and the 100th anniversary of the founding of the International Association of Chemical Societies.** - The year 2011 marks the one-hundredth anniversary of the Nobel Prize in Chemistry awarded to *Marie Sklodowska Curie*, recognizing her discovery of the elements radium and polonium. Dr. Curie's achievements continue to inspire students, especially women, to pursue careers in chemistry. The year 2011 also marks the one-hundredth anniversary of the founding in Paris of the International Association of Chemical Societies to address the need for international cooperation among chemists and international standardization of nomenclature, atomic weights, physical constants, and scientific communication.

The International Year of Chemistry – 2011 will:

- Improve the understanding and appreciation of chemistry by the public.
- Enhance international cooperation by serving as a focal point or information source for activities by national chemical societies, educational institutions, industry, governmental and non-governmental organizations.
- Promote the role of chemistry in contributing to solutions to global challenges.
- Build capacity by engaging young people with scientific disciplines, especially the scientific method of analysis developed by hypothesis, experiment, analysis and conclusions.

Most appropriately, this international initiative is being led by the International Union for Pure and Applied Chemistry (IUPAC), which in 1919 succeeded the International Association of Chemical Societies. IUPAC, founded by chemists from academia and industry, has a truly global reach with 51 National Adhering Organizations and 21 Associate Adhering Organizations. UNESCO, as a specialized UN organization, promotes international collaboration among its 193 Member States and six Associate Members in the fields of education, science, culture and communication.

Activities: Local organizers are invited to generate ideas for appropriate activities. Proposals will be reviewed by the Management Committee and, if approved, the activity will be listed on the IYC website and given permission to use the IYC logo. Several international 'cornerstone' events are also planned, including (i) an advance publicity event at PACIFICHEM in Honolulu in December 2010, (ii) an official launch with UNESCO in Paris in January 2011, (iii) the IUPAC Congress in San Juan, Puerto Rico in August 2011, and (iv) a closing event in Brussels in December 2011. It is planned to have at least one event that will take place spontaneously all around the world. Examples of IYC events taking place in local, state, regional, and national venues include:

- Treating all levels of students, from preschool children to university students to chemistry demonstrations at appropriate levels.
- Organizing visits to industrial sites including manufacturers, chemical producers, metal and petroleum refiners.
- Publicizing the contributions that chemistry makes to the global economy by submitting articles to the press and to magazines or developing television and radio programs.
- Sponsoring poster exhibitions highlighting the usefulness and wonder of chemistry.
- Organizing problem-solving projects through which students can use their knowledge of chemistry to develop solutions to local problems.
- Publicizing the contributions that chemistry has made to improve lives, particularly recent developments in chemical research.
- Holding career fairs and inviting professionals to schools to show how they use chemistry in their jobs. Organizing hands-on activities and demonstrations to help participants gain an understanding of what it would be like to work in a chemistry-related field.
- Interacting with government leaders to underscore the importance of a strong chemical enterprise.

To assist in the developing projects, the Management Committee will produce a web-based "toolkit" of ideas organizers of IYC events. The IYC website will include links to national chemistry celebrations worldwide, listing IYC activities.

Administration and Timeline:

In December 2008 the UN General Assembly declared 2011 as the International Year of Chemistry. IUPAC will work with national and international federations and societies to publicize IYC within the context of ongoing annual national and regional celebrations of chemistry that are scheduled to take place. All countries will be encouraged to participate.

In addition, the organizers will begin a fundraising campaign on behalf of IYC-2011 so that it can provide seed funding for projects, especially in developing countries, to elucidate the benefits of chemistry to the public and to expand them. IUPAC will seek resources to hold "cornerstone" international events described above.

- A relatively small Managing Committee, with worldwide representation, is supervising the IYC-2011 project. Also planned is a larger IYC Implementation Group, members of which will be available to share ideas, expertise and contacts with each other and with the Management Committee.
- IUPAC will publicize plans for activities and reports as they are received. This information will be collected for dissemination in appropriate publications or through the internet.

Timeline

2007-2008 **Inception**

Approval at IUPAC General Assembly – Torino, August 2007
Formation of Management Committee
First meeting of Management Committee – Istanbul, March 2008
UNESCO Executive Board decision – March 2008
Second Management Committee Meeting – August 2008
UN declaration – December 2008

2009 **Planning**

Logo design
Secretariat structure finalized and set up
Third Management Committee Meeting - April
Website version 1
Planning event at IUPAC General Assembly – Glasgow, August
Fundraising begins
Cornerstone project proposals considered
Cornerstone coordinators meeting
Brochure 1.0 designed and approved

2010 **Preparation**

Management Committee monitors planned activities
New brochure release
Website version 2
First activities and events
December publicity event at PACIFICHEM – Honolulu, December

2011 **Implementation**

Opening Ceremony – Paris, January
Global events
Regional Events
National Events
Event at IUPAC Congress / General Assembly– Puerto Rico, August
Closing Ceremony – Brussels, December

2012 **Evaluation**

Evaluation and follow-up
National reports
IYC-2011 Secretariat final report

IUPAC was formed in 1919 by chemists from industry and academia. For nearly 90 years, the Union has succeeded in fostering worldwide communications in the chemical sciences and in uniting academic, industrial and public sector chemistry in a common language. IUPAC is recognized as the world authority on chemical nomenclature, terminology, standardized methods for measurement, atomic weights and more. In recent years, IUPAC has been pro-active in establishing a wide range of conferences and projects designed to promote and stimulate modern developments in chemistry, and also to assist in aspects of education and public understanding of chemistry. More information about IUPAC and its activities is available at www.iupac.org.

UNESCO, founded in November 1945 as a specialized agency of the United Nations, contributes to the building of peace, the alleviation of poverty, to sustainable development and intercultural dialogue through education, science, culture, and communication. In fulfilling its mission, UNESCO functions as a laboratory of ideas and a standard-setter to forge universal agreements on emerging ethical issues. The Organization also serves as a clearinghouse – for the dissemination and sharing of information and knowledge – while helping Member States to build their human and institutional capacities in diverse fields. Through these activities, UNESCO promotes international co-operation among its 193 Member States and six Associate Members. Its programmes in natural sciences focus on mobilizing science knowledge and policy for sustainable development in the areas of basic sciences, science education, ecological and earth sciences, water sciences and climate change. More information about UNESCO and its activities in the natural sciences is available at www.unesco.org/science.

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