

**IUPAC COMMITTEE ON CHEMISTRY EDUCATION (CCE)
Sub-committee on Chemistry Education for Development (CED)**

Chair's report to CCE

Mei-Hung Chiu, CED Chair

June 29, 2011

Members:

Prof. Jan Apotheker (Netherlands)	Chin-Cheng Chou (Taiwan)
Prof. Masahiro Kamata (Japan)	Prof. Ram Lamba (Puerto Rico)
Prof. Christiane Reiners (Germany)	Dr. Lida Schoen (Netherlands)
Dr. Erica Steenberg (South Africa)	Prof. Natalia Tarasova (Russia)

This report highlights CED's main activities since August 2010.

1. Flying Chemistry Program (FCP). The purpose of FCP is to provide emerging or economically disadvantaged countries with resources and strategies for improving teaching and learning of chemistry at the primary, secondary, and tertiary levels. Two highly successful FCP program visits took place during the last year. The first trip was to Croatia in November 2010, and the other to Ethiopia in February 2011. This visit to Ethiopia was scheduled to coincide with the launch of Ethiopia's International Year of Chemistry (IYC) which was declared by UNESCO and the UN. Several members of CCE worked closely with local organizers on the development of proposals and activities for these two FCP visits. These two visits brought different sources to over 100 chemistry teachers at secondary and tertiary levels in each country.

The first Chemistry Education Workshop in Croatia was held during the November 2010 conference and was a huge success, leaving a significant impact on the local educators as well as the international scholars who attended. The keynote speakers included Bob Bucat (Australia), Nenad Judaš (Croatia), Tom Greenbowe (United States of America), Mordechai Livneh (Israel), Metodija Najdoski (Republic of Macedonia), and Mei-Hung Chiu (Taiwan). The speakers were chosen because of their areas of expertise and their experience in meeting the needs of local educators from primary school through the university level. This face-to-face visit and exchange of information solidified the partnership between the Ministry of Education, the National Education and Teacher Training Agency (ETTA), the University of Zagreb, the University of Split in Croatia, and the Croatian Chemical Society. One hundred twenty participants from all around Croatia and even the neighboring countries of the Republic of Macedonia and Bosnia came together to discuss how to implement innovative technology and instruction throughout the education system. The

organizers are already planning to host a second Chemistry Education Workshop in 2012



Flying Chemistry Program in Croatia, November, 2010

The Federation of African Societies of Chemistry (FASC), headquartered in Addis Ababa, Ethiopia, played a great role in getting the International Year of Chemistry 2011 approved by the UN after Ethiopia was selected by the IUPAC to do so. Ethiopia brought together a network of international chemists and chemistry educators to enhance the capacity of the country to provide innovation in chemistry education at the secondary and tertiary levels. Particular emphases were placed on laboratory instruction, designing and implementing contextualized and learner-centered chemistry education, visualization in learning chemistry, and promoting innovative ways of training effective chemistry teachers. The FCP visit to Ethiopia also coincided with the 27th Annual Conference of the Chemical Society of Ethiopia, and was planned in consultation with both the Chemical Society of Ethiopia and the FASC. In Ethiopia, the resource persons included Hans Dieter Barke (Germany), Mei-Hung Chiu (Taiwan), Jorge Ibanez (Mexico), Peter Mahaffy (Canada), and Lida Schoen (Netherlands). The FCP visit was organized by the Chemical Society of Ethiopia, with the full support and participation of FASC, the Ministry of Education, The Ethiopian National Commission for UNESCO, and the University of Addis Ababa in Ethiopia. Before FCP was launched, a 2-day YAC workshop was conducted with secondary school teachers and also a YAC event in front of the Ministry of

Education. The FCP visit began with a half-day official launch of IYC in Ethiopia, and after three days of workshops, lectures, and brainstorming sessions, was followed by the 27th Annual Conference of the Chemical Society of Ethiopia. Besides the grants from IUPAC and CCE, the FCP visit was also sponsored by both the Chemical Society of Ethiopia and the FASC and UNESCO.



Flying Chemistry Program in Ethiopia, February, 2011

Several members of CCE worked closely with local organizers on the development of proposals and activities for these two FCP visits. Over 100 school teachers and university lectures participated in the lectures, workshops, and lab demonstrations. Feedback from participants revealed that they left the conference with innovative instructions for new ways of thinking and teaching. The most difficult challenge for them was how to adopt these innovations into their teaching practices with the limited resources available. Means of promoting chemistry education in Ethiopia remain a CED focus with efforts being ongoing.

Latin America is being considered for the next FCP visit in conjunction with YAC, and activities would likely be arranged in both Mexico and a Central American Country (e.g., Panama) in 2012.

2. The YAC Evaluation Project

As part of the YAC Evaluation Project, visits were completed in Taiwan in 2010 and Ethiopia in 2011. Details will be reported by Lida Schoen.

As part of the YAC Evaluation Project, visits were completed in Taiwan in 2010

and Ethiopia in 2011. Details will be reported by Lida Schoen.



YAC in Ethiopia, February, 2011

3. Network for Inter-Asian Chemistry Educators (NICE)

In order to stimulate interactions among chemistry educators and promote chemistry education throughout the Asian-Pacific region, NICE was established in 2006 by Choon Do (Korea), Masato Ito (Japan), and Mei-Hung Chiu (Taiwan). The first three NICE symposia were held in Seoul, Korea; Tokyo, Japan; and Taipei, Taiwan. The fourth NICE biennial meeting will be held again in Seoul, Korea, July 26-28, 2011 (Details will be reported by the conference chair Dr. Choon Do). A panel was put together to explore how to mark the 100th anniversary of Marie Curie's Nobel Prize Award and includes the three people mentioned above and Masahiro Kamata (Japan). The 5th NICE symposium will be hosted by Taiwan in 2013. The NICE symposia have successfully brought researchers and educators together to discuss major issues around promoting sustainability and global partnership in chemistry education.



4th NICE official website in Seoul, Korea

- The book entitled *Celebrating the 100th anniversary of Madame Marie Curie's Nobel Prize in Chemistry*, is co-edited by Mei-Hung Chiu (Taiwan), Penny J. Gilmer (USA), and David Treagust (Australia) is one of the activities to celebrate IYC. Gilmer and Treagust are the past presidents of the National Association of Research in Science Teaching (NARST), the largest science education association in the world. Three sections and 11 chapters are covered. See details in appendices. In support of the IYC, the CED also passed the IUPAC IYC activity, "Global

Stamp Competition: Chemistry as a Cultural Enterprise" on Jan 27, 2011 to the Federation of Asian Chemical Societies (FACS) to be appeared on official website.

CELEBRATING THE 100TH ANNIVERSARY OF MADAM MARIA SKŁODOWSKA CURIE'S NOBEL PRIZE IN CHEMISTRY

Editors:
 Mei-Hang Chu, Penny I. Gilmer, David Treagott,
 National Taiwan University, Dept. of Chemistry, Science and
 National Central University, and Biochemistry, Education Center,
 Graduate Institute of Science Education, Florida State University, Curator's Center,
 Taiwan, United States, Australia
 mhk@ntnu.edu.tw, gilmer@chem.fsu.edu, dtreagott@ntnu.edu.au

To be published by Sense Publishers in 2011

2011 is the 100th Anniversary of Marie Curie's Nobel Prize in Chemistry.
 Marie Curie was the first woman to receive any Nobel Prize and the first person to receive two Nobel Prizes. Her 1st Nobel Prize was in Physics in 1903.

Tentative Table of Contents:

Section 1: Marie Curie's Impact
 (Chap 1) Marie Curie: A woman who changed the world (Mei-Hang Chu & David Treagott, Taiwan)
 (Chap 2) Marie Curie: A woman who changed the world (Penny I. Gilmer, USA)
 (Chap 3) Marie Curie: A woman who changed the world (David Treagott, Australia)
 (Chap 4) Marie Curie: A woman who changed the world (Mei-Hang Chu, Taiwan)

Section 2: Women Scientists in the past two centuries
 (Chap 5) Women Scientists in public education during the nineteenth century (Mei-Hang Chu, NTU)
 (Chap 6) The twentieth century of women scientists (David Treagott, Australia)
 (Chap 7) A century of women scientists: The case of Marie Curie (Mei-Hang Chu, Taiwan)

Section 3: Future
 (Chap 8) Marie Curie and the future (Penny I. Gilmer, USA)
 (Chap 9) Marie Curie and the future (David Treagott, Australia)

CHEMISTRY 2011

Celebrating the 100th anniversary of Madame Marie Curie's Nobel Prize in Chemistry,