Standardization of Analytical Approaches and Analytical Capacity-Building in Africa

A World Bank study in 2003 determined that a major barrier to the export of commodities from many African countries is the inability of laboratories in those countries to provide test results that meet international standards. A new cooperative project among IUPAC's Analytical Chemistry Division, the Chemistry and the Environment Division, and IOCD* seeks to upgrade selected laboratories in Africa so they can produce reliable and internationally accepted analytical results. This will help farmers and enterprises in the private sector to export commodities to markets in the USA, European Union, and Japan, where compliance with international standards is required.

During phase one of the project, IOCD, in partnership with regulatory groups, Ugandan officials, and others, will first find out which laboratories and products are involved and what standards need to be met for specific Ugandan products. For phase two, an IOCD task group of five chemists (including two Africans) will visit Uganda and work closely with individuals in government and the private sector (economists, regulatory officials, farmers and entrepreneurs, laboratory managers, and staff scientists), to establish remedial measures jointly identified by the laboratories to build analytical capacity. Phase three will involve implementing these remedial measures Funding for the third phase will be requested from Ugandans, IUPAC, UNESCO, and other sources.

The support and involvement of IUPAC will be particularly critical in human capacity building (e.g., fellowships, expert visitors, workshops) and in laboratory upgrading (e.g., proficiency testing, quality assurance, research). IUPAC has generously contributed USD 10000 for a three-year period to sponsor training sessions. UNESCO, ALMA (the African Language Materials Archive program), and the U.S. National Academy of Sciences also have agreed to help.

Constructive feedback from IUPAC members and others would be appreciated.

For more information, contact Task Group Chairman Walter R. Benson <WBenson270@aol.com>.

www.iupac.org/projects/2004/2004-017-1-500.html

*IOCD is the International Organization for Chemical Sciences in Development; see May-June 2002 *CI* or <www.iocd.org>.

Young Ambassadors for Chemistry

As part of the Young Ambassadors for Chemistry (YAC) project, the first of a series of four workshops for Science and Language teachers was held 22–26 November 2004 at the National Taiwan Normal University (NTNU) in Taipei. The workshops are intended to encourage public understanding of chemistry through events for young people in public locations.

Two graduate Young Ambassadors for Chemistry.

The event in Taipei was organized with the support of a number of partners—a measure of the level of collaboration that was achieved in preparing for the workshop. Those partners included IUPAC; Science Across the World (SAW); GlaxoSmithKline; NTNU; National Science Council, Taiwan; British Council, Taipei; Chinese Chemical Society, located in Taipei; and GlaxoSmithKline Taiwan. Representatives from all of the partner organizations attended the opening and grand finale of the YAC workshop.

Young Ambassadors for Chemistry Workshop

Four days of workshops, which followed the "train the trainer" model, introduced 25 participants—chemistry and language teachers and science museum staff from all over Taiwan—to the SAW program for increasing public understanding of chemistry. On the final day, the participants hosted students for a YAC day celebration in a public place.

The Graduate Institute for Science Education in Taipei offered an ideal setting for the workshops. Professor Mei-Hung Chíu, from the Institute, along with Dr. Shu-Nu Chang, provided impeccable organization and facilities. A large stand with all of the workshop details and the YAC logo was

One group of students, during the YAC day, presenting a TV commercial about their new line of cosmetics.

displayed the whole week. Visitors could also view a nice selection of posters from last year's successful poster competition. All course materials were collected in a course book adorned with the logo and packed in a wonderful sustainable bag.

During the first two days of the workshops, Professor Choon Do from Korea was a special guest. He is investigating how to organize a YAC event in Korea.

Monday–Thursday

After introductions, the participants gave presentations about their schools or (science) museums, debated science issues, and discussed the concept of "active learning." The participants were also introduced to SAW—which has a membership of over 3100 teachers in 99 countries—and had the chance to join for free.

The workshops concentrated on two topics: "talking about genetics around the world" and "chemistry in our lives." In groups of four, the participants practiced the "experiments." For genetics, they constructed a large DNA molecule from sweets. For chemistry in our lives, they developed a line of cosmetics with three coherent products. Each group then practiced creative TV commercials promoting their new lines of cosmetics. With this training, the participants were ready to help the students during the YAC event. After four days of training, certificates of recognition were handed out.

Friday—YAC day

And then came YAC day! The event wasn't held in just any public place—it was held in the shopping center in Taipei 101, the tallest building (508 m) in the world! Adding more excitement was a strong storm that occurred during the event. Seventy-two students from three different schools in Taipei worked very hard to show the public the wonders of chemistry. They composed, with a little help from the trained teachers, their DNA models and their lines of cosmetics and TV commercials, hardly noticing the storm and the very windy eather.

After Professor Chíu announced the grand finale, a jury had the hard job of determining which student groups had the best DNA models and TV commercials. At the end of the day, the winning student groups received their prizes and all students were offered a certificate of recognition and presents from the different participating organizations.

Teachers and participants at the four-day workshop.

Results from Roving Reporters

Apart from the students who worked on cosmetics and DNA, there were three groups of roving reporters. They asked the public questions about the event and their opinions about chemistry (see table below).

Summary of Responses to Roving Reporters' Questions

Yes/Positive	No/Negative
Question 1: Do you know what these students are doing?	
53%	47%
Question 2: What is your impression about chemistry? Positive or negative?	
73%	27%
Question 3: Do you think the activity is a good idea for students?	
93%	7%

Following are a few comments about the event and chemistry in general that the public made to these reporters:

- "The event should also be organized in elementary schools and community centers."
- "This display helps us understand life and the world."
- "Chemistry has a positive influence on our life and can improve our society."
- "By applying chemistry to everyday life, it is easier to learn."
- "The first thing I think about when I hear 'chemistry' are 'explosions.'"
- "My impression about chemistry comes from tests (exams)."


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In Taiwan, like so many other countries, this public activity proved very useful. A large percentage of the public never thinks about all the good things chemistry offers to society. We must work on changing the public perception that chemistry is about explosions and exams. The organizers were thrilled to see an article about the YAC event published in the *United Daily News*, Taiwan's largest newspaper!

The Future

Two chemistry activity packs from SAW have been translated into Chinese (you can find these packs at the SAW Web site by following the links to "Chemistry in our Lives" and "Talking about Genetics around the World"). This wonderful achievement gives a large portion of the science education world access to a program that enhances public understanding of chemistry so well!

Seventy-two Young Ambassadors for Chemistry participated in the public YAC event.

(L to R) Choon Do (observer from Korea), Lida Schoen (task group chairman), and Mei-Hung Chíu (local coordinator).

The next stop for the YAC series will be South America this coming summer. Project organizers hope to collaborate with as many organizations in Buenos Aires as they did in Taiwan. Organizers will also aim to include English teachers; participants in Taipei expressed they would have liked more English teachers.

Acknowledgments

The event in Taipei could not have been organized without the support of the previously mentioned partners. In addition we would like to thank Cognis Taiwan for offering the main ingredient for preparing the shampoo, and BioRad, Life Science Education, for donating the "genes in a bottle kit" that enabled students to extract their own DNA.

We also would like to thank all the volunteers and teams of students for their contributions and enthusiastic participation. Without them the week would not have been so successful.

This report was prepared by Keith Kelly (language education consultant) and Lida Schoen (science education consultant). Kelly is FACTWorld coordinator <www.factworld.info> and NILE associate trainer <www.nile-elt.com>. Schoen is a titular member of the IUPAC CCE and task group chairman for this IUPAC project. Go online for more details and more photos.

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www.iupac.org/projects/2003/2003-055-1-050.html
www.scienceacross.org