The Early History of the STP

Safety Training Program Workshop
IUPAC General Assembly
8 July 2019

Mark C. Cesa
2014-2015 President, IUPAC
STP Coordinator 1998-2011
The International Union of Pure and Applied Chemistry is the global organization that provides objective scientific expertise and develops the essential tools for the application and communication of chemical knowledge for the benefit of humankind and the world.
The International Union of Pure and Applied Chemistry accomplishes its mission by:

- **Fostering sustainable development**
- Providing a common language for chemistry
- Advocating the free exchange of scientific information
The Safety Training Program

Enables experts from developing countries to learn about safety and environmental protective measures by visiting and working in plants of IUPAC Company Associates in the industrialized world.
Beginnings of the STP
1993-1997

The Safety Training Program was established in 1993 as a collaboration with UNESCO and UNIDO.

UNIDO provided funding, IUPAC/COCI and UNESCO identified trainee candidates, and IUPAC/COCI arranged for Company Associates to act as Host Companies.

Program was active in the early 1990s
Early records are incomplete, but there were trainees from countries throughout the developing world who received training, at CAs in the USA, Sweden, Switzerland, Germany, Denmark, France, the UK and Belgium.

By 1997, new trainees and funding from UNIDO became scarce, and a proposed joint IUPAC/UNESCO/UNIDO program was apparently not finalized.
Safety Training Program 1998-2011

Organization of the STP
Trainees
Host Companies
IUPAC

Trainees 2000-2011

Challenges beyond 2011
Trainees
Successful Applicants are:

Professional scientists and engineers who are currently:

Involved at a supervisory or managerial level
in chemical companies, governmental or
scientific institutions, or universities;

Engaged in aspects of safety
and environmental protection
or in the teaching of these fields;

Influential in their workplaces
and within their home country.
Responsibilities of Trainees

Utilize learnings within their place of employment

Disseminate knowledge gained in the program throughout home country

Establish new programs to improve safety practices within home country.

File report

Evaluation of training - host company, content of program, usefulness

Activities to be undertaken to apply training after return home
Application Process

Requirements:
- Application Form
- CV or resume
- Supporting letter from senior official at applicant’s place of employment

Applications are vetted by committee composed of members of COCI
Reports

1. What **specific training** was received, including a schedule or agenda or itinerary from the Host Company, including dates; with critical discussion of what was learned and why it will be useful in the trainee’s home country
2. A list of persons met with, including titles and responsibilities of each
3. Sites visited at the Host Company
4. Detailed Plans for **applying learnings after returning home**, at:
   - The trainee's workplace
   - The trainee's company, more broadly
   - The trainee's local area (governments, or broader customers of the company, etc.)
   - The trainee's home country

The application of learnings should encompass at least two of the following:

- **Communication** in the form of a report to the employer, or a presentation at the workplace
- At least one **short-term concrete action** that constitutes an improvement (e.g. new safety procedures in a laboratory)

**Further communications or actions** with:
- Students, faculty, co-workers, or management to institute improved practices
- Local governments or citizen groups
- Regional or national government action

5. A brief **critical evaluation** of what went well and what did not go well during the Host Company visit
6. **Suggestions on improvement** of the program
7. Second report to be received 1 year after candidate returns home, reporting concrete actions (or participation at Workshop)
Benefits for Host Companies

Information exchange between trainee and employees

Potential for future collaboration

Publicity - demonstrate leadership in health, safety and environment

Shareholders

Public relations

Employees

Public – newspapers, journals

Keeping an eye on the road

Safety at work is not a luxury everyone has, but a BP-backed scheme is trying to change that.

You never can be sure who's watching you, or how routine behaviour could affect a co-worker a few feet away or a stranger on the other side of the planet.

Consider the materials arriving for work recently at BP's Naperville, Illinois, complex or the BP Chemical complex in Lima, Ohio, who couldn't have guessed their driving habits were being observed and might save a life in China.

But Zhang Guoheng was watching. "Every driver would stop at every stop sign and look around in all directions even if no other car was approaching," Zhang says in obvious awe. "Every driver! Each one! All of them!"


They are all part of a safety training programme that encourages businesses in industrialized countries to share knowledge about health, safety and the environment (HSE) with developing nations.

Zhang, a senior engineer in the Safety Technical Department of China Petrochemical Company (SINOPEC) lost his father in a construction accident and bears his own scars from work incidents. His visit to BP's facilities was his first trip outside of China and during that time he learned how BP deals with HSE issues on a daily basis.

One aspect that impressed Zhang is "the way that your goal of getting HSE right is part of everything." He also notes the speed with which issues are resolved. "You have extraordinarily productive meetings and everyone becomes involved, not just your leaders."

The engineer says he will take his new safety education back to China and encourage similar practices within his company. He also hopes to impart some of this newfound knowledge to Chinese industry as a whole through newspaper and magazine articles.

"I also want to tell that BP is a very good company and treats its workers well," he says. "And I want to say that BP people are very kind and helpful. I want to say that from my heart."

Topics for Training

Process Safety Management (PSM)
Environmental Protection
HAZOP/HAZAN Analysis
Legislative Measures and Interactions Between Industry, Universities, Government, and the Public
Emergency Planning and Model Studies
Responsible Care and its Relevance to Developing Countries
Integrated Approach for Safety, Health, and Environment (SHE) At Unit and Company Levels
Training of University Teaching Staff in SHE
ISO 9000 and 14000 Series
Material Safety Data Sheets (MSDS)
Typical Training Schedule

Employees directly involved
Shadowing by trainees
Hands-on experiences
Tours of facilities
Participation in decision-making

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Place</th>
<th>Activity</th>
<th>Responsible Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, 10/13</td>
<td>7:00</td>
<td></td>
<td>Travel from Chicago to Lima</td>
<td>Jeff Gilman</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12:30 Kevin’s Office</td>
<td>Kevin Sprague</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kevin’s Office</td>
<td>Welcome to Lima</td>
<td>Kevin Sprague</td>
</tr>
<tr>
<td></td>
<td>12:45</td>
<td>East Chicago Pizza Company</td>
<td>Buffet Lunch</td>
<td>Kevin Sprague &amp; Participants</td>
</tr>
<tr>
<td></td>
<td>2:00</td>
<td>Kevin’s Office</td>
<td>Week’s Logistics and HSE Resources Table</td>
<td>Kevin Sprague</td>
</tr>
<tr>
<td></td>
<td>2:30</td>
<td>Lobby</td>
<td>Safety Video Orientation</td>
<td>Jayne Kisor</td>
</tr>
<tr>
<td></td>
<td>2:45</td>
<td>Office/Restroom</td>
<td>Break</td>
<td>On Own</td>
</tr>
<tr>
<td></td>
<td>3:00</td>
<td>Chuck’s Office</td>
<td>Welcome by Plant Manager</td>
<td>Chuck Treloar</td>
</tr>
<tr>
<td></td>
<td>3:30</td>
<td>Nick’s Office</td>
<td>Review HSE Co-Op Program</td>
<td>Nick Steimle &amp; Todd Flippin</td>
</tr>
<tr>
<td></td>
<td>4:00</td>
<td>Driving Tour of Plant</td>
<td>Driving Tour of Lima Chemical Plant</td>
<td>Jeff Gilman &amp; Kevin Sprague</td>
</tr>
<tr>
<td></td>
<td>5:30</td>
<td>Wingate</td>
<td>Hotel Check In and Break</td>
<td>Jeff Gilman</td>
</tr>
<tr>
<td></td>
<td>6:00</td>
<td>TBD</td>
<td>Dinner</td>
<td>Jeff Gilman &amp; Kevin Sprague</td>
</tr>
<tr>
<td>Tuesday, 10/14</td>
<td>7:30</td>
<td>Hotel</td>
<td>Pick Up</td>
<td>Jeff Gilman</td>
</tr>
<tr>
<td></td>
<td>8:00</td>
<td>Visitor Center</td>
<td>Front Office Pause for PAWS</td>
<td>Jeff Gilman</td>
</tr>
<tr>
<td></td>
<td>8:15</td>
<td>Jan Kentner Office/field</td>
<td>Explain PAWS process and conduct a PAWS observation</td>
<td>Jim Cook and Jan Kentner</td>
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<tr>
<td></td>
<td>9:30</td>
<td>Joe Martz Office</td>
<td>Lima Safety Programs, Traction and areas of responsibilities</td>
<td>Joe Martz</td>
</tr>
<tr>
<td></td>
<td>10:30</td>
<td>Dave Breitgarn Office</td>
<td>Lima IH Programs and areas of responsibilities</td>
<td>Dave Breitgarn</td>
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<tr>
<td></td>
<td>11:30</td>
<td>Medical Clinic</td>
<td>Lima Medical Programs and areas of responsibilities</td>
<td>Linda Schumacher &amp; Kellie Johnston</td>
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<td></td>
<td></td>
<td></td>
<td>Lunch</td>
<td>Bob Schantz</td>
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<tr>
<td></td>
<td>1:30</td>
<td>BDO Lab</td>
<td>Review Lab safety and safe sample collection issues</td>
<td>Dave Linderud</td>
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<tr>
<td></td>
<td>2:30</td>
<td>Dave Linderud Office</td>
<td>PSM and the Lima Process Safety Committee</td>
<td>Dave Linderud</td>
</tr>
<tr>
<td></td>
<td>3:15</td>
<td>Tom Say’s Office</td>
<td>NPDES sampling and visit outfall and ponds.</td>
<td>Tom Say</td>
</tr>
<tr>
<td></td>
<td>4:30</td>
<td>Kevin’s Office</td>
<td>GHSER</td>
<td>Kevin Sprague</td>
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<tr>
<td></td>
<td>5:30</td>
<td>Hotel drop off/break</td>
<td>Drop off and Break</td>
<td>Kevin Sprague</td>
</tr>
<tr>
<td></td>
<td>6:30</td>
<td>Dinner at the Sprague House</td>
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<td>Kevin Sprague</td>
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</table>
Publicising the STP

Safety Training Program—Call for Applicants

Making the world a bit safer, safety experts from developing countries have an opportunity to visit and work in plants of IUPAC Company Associates in the industrialized world for a training period of one to three weeks.

The IUPAC-UNESCO-UNIDO Safety Training Program is a Fellowship Program for Safety and Environmental Protection in Chemical, Biotechnological, and Pharmaceutical Production that allows safety experts from developing countries to learn about safety and environmental protective measures by visiting and working in plants of IUPAC Company Associates in industrialized countries. IUPAC, working with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the United Nations Industrial Development Organization (UNIDO), has established and maintained the Safety Training Program to promote interactions between developed countries and the developing world to disseminate state-of-the-art knowledge on safety and environmental protection in chemical production.

Each scientist or engineer accepted into the Safety Training Program is assigned to an IUPAC Company Associate in an industrialized country. Accommodation, subsistence, and travel expenses are provided for all trainees.

Successful candidates are professional scientists and engineers who currently:

- Involved at a supervisory or managerial level in chemical companies, government institutions, or scientific institutions;
- Engaged in aspects of safety and environmental protection in chemical, pharmaceutical, or biotechnological production or in the teaching of these fields;
- Have the ability to influence safety practices in their places of employment and elsewhere within their home country.

Applications are now invited for placement in the 2006 program. For more information, go to www.iupac.org/stand/Div/LI/safety-programs.html.

Call for Host Companies

IUPAC has teamed with five companies in the chemical industry to offer the STP Fellowship Program. Each of these companies is committed to providing a safe work environment for their employees and to sharing that knowledge with other companies. They will provide the opportunity for a safety expert from a developing country to work with their staff and gain experience in safety and environmental protection in the chemical industry.

Host Companies:
- Dupont
- BASF
- Wacker Chemische Werke
- ChemChina
- Sinopec

IUPAC/UNESCO/UNIDO Cooperation

The IUPAC, UNESCO, and UNIDO have joined forces to offer this program. Each organization is committed to promoting safety and environmental protection in the chemical industry.

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15 8 July 2019
Administration

IUPAC Committee on Chemistry and Industry (COCI)
Recruiting, vetting and approving trainees
Matching trainees and Host Companies
Financial support for travel and for Workshops

Host Companies
Trainees’ local expenses
Development of course of study; training
Trainees 2000-2011

Ms. Esma Toprak - Director of Chemical Engineering Laboratories, Bogazici University, Istanbul, Turkey
Trained at BP Amoco Chemicals Research Laboratory and Chemical Plant, Chicago, IL and Green Lake, TX

Prof. Ali A. El-Emam - Dean of Faculty of Pharmacy, University of Mansoura, Egypt
Trained at Bristol-Myers Squibb Corp. Laboratories and Production Facilities in New Jersey, USA
Trainees 2000-2011

Mr. Zhang GuoHong, Unilever, China
Trained at BP Chemicals, USA

Ms. Jane Nyakang’o, UNIDO National Cleaner Production Centre, Nairobi, Kenya

Ms. Ana Luisa Arocena, Waste Management Expert, Montevideo, Uruguay

Trained at BP Chemicals facilities in Naperville, IL USA and Lima, OH USA
Trainees 2000-2011

Mr. Tersoo Charles Gwaza - Shell Petrochemical Development Company, Port Harcourt, Nigeria
Trained at Sasol, South Africa

Mr. Kelvin Khisa - UNIDO National Cleaner Production Centre, Nairobi, Kenya
Trained at Sankyo, Japan

Mr. Isiaka O. Bakare Dare, Rubber Research Institute of Nigeria, Benin City, Nigeria
Trained at Mitsui Chemical Co., Japan
Trainees 2000-2011

Prof. Said Mohammed Mahmoud Bayomi
Pharmaceutical Chemistry,
University of Mansoura, Egypt

Trained at Astra Zeneca, UK
Trainees 2000-2011

Mr. Godfred Nyarko
Health, Safety and Environment Coordinator
Tema Lube Oil Company, Ghana

Mr. Fabian Benzo Moreira
Occupational Health and Safety
University of Uruguay, Montevideo

Trained at Mitsui Chemical Co., Japan, 2007
Trainees 2000-2011

Dr. Gursharn Singh Grover
National Chemical Laboratory, Pune, India

Trained at Novozymes A/S - Denmark
Examples of New Programs

Laboratory Safety – student training, laboratory manuals - Turkey

Fire Safety Education at local levels - Kenya

Improving PPE and safety equipment in the workplace - Nigeria

Published Articles on Safety in Chemical Production – China

Safety Training Courses – India

Regional Safety Workshops – Latin America
Safety Training Program Workshops

Mechanism for follow-up and monitoring of progress

Held at IUPAC Congresses
- Ottawa – 2003
- Beijing – 2005
- Turin – 2007
- Glasgow – 2009
- San Juan – 2011
- Istanbul – 2013
- Busan – 2015
- Sao Paulo – 2017
- Paris - 2019

- Trainees present and discuss activities they have pursued since training
- Plenary speakers address topics relevant to chemical safety and security
- COCI assesses suggestions for improvements to the STP
Challenges in 2011

Funding

Recruiting Host Companies

New Topics
  Chemical Security – CRDF

New Languages – e.g.
  Francophone World
IUPAC Centenary 1919 - 2019

International Year of the Periodic Table - 2019

www.iupac.org

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26

8 July 2019