The IUPAC-UNESCO-UNIDO Safety Training Program

Mark C. Cesa
Chair, IUPAC Committee on Chemistry and Industry Coordinator, STP
IUPAC Committee on Chemistry and Industry

Role and Strategic Priorities

- Projects that share best practice globally
- Knowledge transfer to developing countries
- Capacity building (e.g. safety training workshops)
- Public appreciation of chemical science and technology
- Reputation and trust

Provides the IUPAC ‘home’ for industrial companies
Economic development plus societal and environmental factors
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.
Administration

IUPAC Committee on Chemistry and Industry (COCI)
Recruiting, vetting and approving trainees
Matching trainees and Host Companies

United Nations Educational, Scientific, and Cultural Organization (UNESCO)
Financial Support for travel and for in-country programs after training
Trainee recruiting and placement

United Nations Industrial Development Organization (UNIDO)
Recruiting trainees
Trainee Placement within UNIDO facilities

Host Companies
Trainees’ local expenses
Development of course of study; training
Selection of Trainees

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.
Selection of Trainees

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
Trainees and Host Companies
Trainees since 2000

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 since 2000

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

Mr. Kelvin Khisa - UNIDO National Cleaner Production
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 since 2000

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 since 2000

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

Trained at Astra Zeneca, UK
Trainees in 2007

**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
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 with IUPAC, UNESCO, and UNIDO

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

Activities to be undertaken to apply training after return home
Trainee 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)
Topics for Training - Examples

Process Safety Management (PSM)
Environmental Protection
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

### Schedule for IUPAC-UNESCO-UNIDO safety training program


**Week of October 13, 2003**

**BP Chemicals Inc.**

**Lima, OH**

<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>Travel from Chicago to Lima</td>
<td>Jeff Gilman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12:30</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 and his vision on HSSE</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 and 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 and 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>
</tr>
<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 Breitigam Office</td>
<td>Lima IH Programs and areas of responsibilities</td>
<td>Dave Breitigam</td>
</tr>
<tr>
<td></td>
<td>11:30</td>
<td>Medical Clinic</td>
<td>Lima Medical Programs and areas of responsibilities</td>
<td>Linda Schumacher, Kellie Johnston, Dee Oyer</td>
</tr>
<tr>
<td></td>
<td>12:30</td>
<td>Someplace healthy</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1:30</td>
<td>BDO Lab</td>
<td>Review Lab safety and safe sample collection issues</td>
<td>Bob Schantz</td>
</tr>
<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>
</tr>
<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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Safety Training Program Workshops

Mechanism for follow-up and monitoring of progress

Held at IUPAC Congresses
  Ottawa – 2003
  Beijing – 2005
  Turin – 2007

Trainees present and discuss activities they have pursued since their training

Plenary speakers address topics of concern in the country or region where the Congress is held
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

Conference on Safety in Chemical Production - Kenya
Benefits to 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 motorists 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 Guohong 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 new-found 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.”

Words: Tom Seskar

Acknowledgments

Host Companies
BP Chemicals – USA
Bristol-Myers Squibb – USA
Sasol – South Africa
Sankyo Co. – Japan
Mitsui Chemical Co. – Japan
AstraZeneca – UK

Financial and Administrative Support
IUPAC
UNESCO
UNIDO
Further Information

Application Forms
Brochures
Reports from Trainees
Articles and Publicity
Workshop Summaries