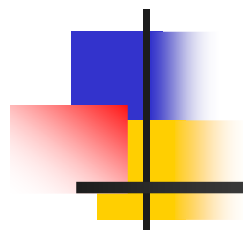


Safety Training Programme – Learning's, applications, challenges & path forward



Presentation by
Dr. G.S.Grover
National Chemical Laboratory, Pune, INDIA
at
42nd IUPAC Congress, Glasgow, U.K.
4th August 2009

S504_006



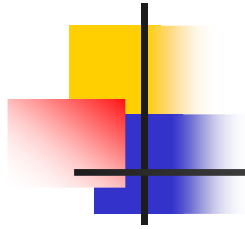
NCL was established in 1950 at Pune, India

NCL Confidential

N.C.L., Pune

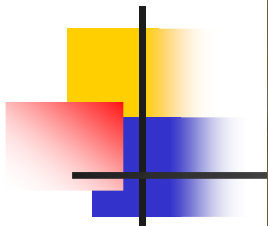


- The purpose of this laboratory is to advance knowledge and to apply chemical science for the good of the people
- Excellent infrastructure for R & D in chemical and bio- sciences.
- ~250 staff, ~400 PhD students & ~ 400 PA's, ~ 75 summer trainees.
- Publish ~ 400 papers & file the largest number of patents, both in India and USA (~75)
- Produce the largest number of Ph.Ds (~80) in chemical sciences in India



Novozymes A/s

- An enzyme production facility along with related R & D activities,
- The main focus of OH&S systems and protocols are focused on prevention of enzyme exposure (dermal or inhalation) that may lead to allergy



NdES (Nadia El-Salanti); TDA (Ture Damhus); AMNi (Anne Mette Nissen Lykke)



Other visits while at NZ

- Haldor Tøpsoe A/S
- University of CPH-Dept. of Chemistry



Learning's at NZ: Highlights

- Exposure included a wide variety of topics
- Risk assessment is the fundamental pillar of any safe operation in a production facility or research environment and is very effectively implemented at Novozymes
- Accident reporting and investigations
- Preparation & use of MSDS
- Crisis & disaster management
- Environmental services



Applications of STP

-at NCL, Pune

- Orientation programmes :Lasting awareness about hazardous, toxic or flammable nature of chemicals
- Introduced solvent storage cans & cabinets facilities.
- Appropriate solvent storage facilities in labs at a cost of USD ~120K
- Create and standardize toxic and hazardous waste disposal systems.
- Fire safety audit & Emergency evacuation plans & response teams
- Mock drills (proposed).
- Risk assessment



Applications of STP -outside of the institute

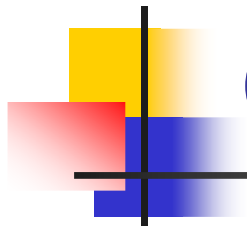
- Tied up with 'National Safety Council', Mumbai as a visiting faculty.
 - NSC is a non profit organization set up Ministry of Labour, Govt. of India.
 - The principle objective of NSC is to strengthen Safety, Health and Environment aspects at the National level.
- Two, 3-day national level seminars (Sept 08, May 09).
- Participation from over 25 organizations, both academic and industrial.



Applications of STP

-short courses and seminars

- Central Pollution Control Board, Delhi.
- Central Glass & Ceramic Research Institute, Kolkata
- Dept of Botany, University of Pune.
- Modern College of Arts Science & Commerce, Pune
- Vishvakarma Institute of Technology, Pune.



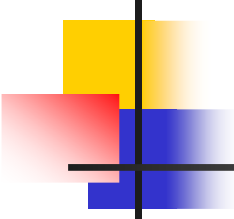
Outcomes

- Have succeeded in implementing few systems in home institute. Risk analysis- a matter of practice.
- The rapport with NSC has broadened the horizon and visibility.
- Total 7 seminars. > 375 participants
- The reference of “Mandate from IUPAC” matters (!).



Concerns & major challenges

- Proper application of chemical safety guidelines / regulations.
 - Little concern about hazardous, toxic or flammable nature of chemicals that may have far reaching implications.
 - Inadequate reference to MSDS and SOP's
 - Inadequate use of PPE
- Disposal of waste chemicals and flammable solvents
- Effluent treatment.
- Overcrowding of labs
- Safety awareness in schools / colleges



Path forward>>>Things to do

- Create lasting awareness about hazardous, toxic or flammable nature of chemicals that may have far reaching implications.
 - Creation of appropriate departments with adequate staff with defined roles and responsibilities.
- Strengthen local systems & solutions.
- Regulate procedures & documentation.
- Introduce controls and approvals.
- Standardise toxic and hazardous wastes disposal.
- Emergency response team
- Evacuation procedures and drills



Path forward...

- Recognize that awareness must start early at schools & university level
- Propose ties with
 - Pune district council (local level)
 - Ministry of Environment & Forests (national level)
- Awareness amongst teaching staff of schools and colleges.
 - Seminars
 - Booklets / brochure
 - Practical guidance
 - Create a HELP centre
- Need to benchmark and move ahead.
- How?



Suggestions

- STP fellows to work in 'project mode' for in-country programmes after training.
- Networking
- Response to emergent situations?
 - Links to experts
 - Access to database
 - Real time solution?
- Can act as a bridge on HSE issues in developing countries.



Acknowledgement

- Dr. Mark Cesa,
- Other members of COCI
- IUPAC –UNESCO-UNIDO
 - Financial support
- Novozymes A/s
 - Gracious hospitality & training
 - (Nadia El-Salanti, Anne Mette Nissen Lykke & Ture Damhus)
- NCL
 - Dr. S. Sivaram



Thanks for your attention



NCL Confidential