



IUPAC-UNESCO-UNIDO Safety Training Program Workshop
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Abstracts

**ENVIRONMENTAL SAFETY AND MANAGEMENT TRAINING: ITS IMPACT ON RUBBER RESEARCH
INSTITUTE OF NIGERIA**

Isiaka O. Bakare
Rubber Research Institute of Nigeria, Benin City - 300001, Nigeria.

Lack of environmental and safety management consciousness among Technical Staff in Research Institutes is the main reason for poor safety procedures and practices in Laboratories in Nigeria. Therefore, there is need for Safety Training in the Rubber Research Institute of Nigeria. Scientists and Technical staff in RRIN were recently trained. Also, RRIN Safety Committee was established to advise management, monitor and ensure compliance to safety rules and regulations in the institute. Basic laboratory safety materials were also provided for staff. Since, RRIN provides laboratory and other technical services to farmers, agro-based industries, tertiary institutions & others, as one of her mandates. Consequently, fresh graduates and undergraduates' students from tertiary institutions in different parts of the country and other relevant stakeholders were trained on environmental safety and management. Recently, chemical and equipment suppliers/ sales representatives and two commercial laboratories' staff in the southern part of the country were also trained. These achievements and difficulties experienced during this safety-training program are discussed.

**THE REGIONAL CONFERENCE ON OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT IN EAST
AFRICA**

Kelvin Khisa
Kenya National Cleaner Production Centre, Nairobi, Kenya.

In recent years there has been increased emphasis on the need to improve on the occupational health and safety status of the work environment as a response to a marked increase in the number of work related accidents. Developed world governments are keenly taking a hard look at safety in industry and there has been a marked increase in the amount of government regulation in this area. Whereas industrialists in the developed world take safety issues seriously, their counterparts in the developing world do not do so with the same gravity. It is against this background that this conference was organized for the East African region for purposes of improving on this deteriorating situation. The workshop attracted a total of 50 industrialists. It was resolved that Health and Safety Audits be undertaken for all the 50 participating institutions with the ultimate goal of highlighting weaknesses in their safety procedures for improvement. So far, five such Health and Safety Audits have been undertaken and the remaining 45 will be undertaken in the next two years. The improvement measures are to be monitored and evaluated over time.

BUILDING CAPACITY IN ENVIRONMENT, HEALTH AND SAFETY IN KENYAN BUSINESSES

Ms. Jane Nyakang'o
Director, Kenya National Cleaner Production Centre, Nairobi, Kenya

The Kenya National Cleaner Production Centre helps businesses comply with Safety legislation that requires businesses to form Safety Committees and submit annual Occupational Health and Safety Audits. These committees are often inadequately trained and have limited information on hazards. The Centre has therefore incorporated safety in its activities to prevent occupational accidents and diseases and to improve the working environment. The Centre concentrates on principles of prevention and root-cause analysis. Since 2003 8 national workshops on Environment, health and safety have been held, and 167 experts have received safety training to implement industry safety programs. In September 2006 an East African workshop in Kenya drew participants from Kenya, Uganda and Tanzania with more than 80 businesses. The Centre has also undertaken 35 safety audits in 15 different business sectors. The Centre has launched an Occupational Health and Safety Award to recognize significant reductions in occupational health and safety hazards and has developed



an Industry Program to reduce or eliminate the generation and release of unintentionally produced persistent organic pollutants.

IMPROVEMENTS OF OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT IN TURKEY

Esma Toprak
Esma, Istanbul, Turkey

The concept of Occupational Health and Safety Management (OH&SM) in Turkey has been well understood and the implementations about this matter have been developed during the past few years.

Since Turkey is one of the most rapidly developing countries, its industry is also growing fast. Unfortunately, Health and Safety experts for industrial sectors were not sufficient. Work related accidents and day losses made companies to take serious action to improve their safety records.

During negotiations for Turkey to become a member of the European Union (EU), many strict safety regulations were put into action by the Turkish Government. These regulations help us in providing and imposing implementations. Ministry of Labour and Social Security asked the European Union for technical assistance to reach European safety standards. ISAG Project was set up and was successful.

The importance of education in safety training for disseminating the safety concept is vital to keep up these kinds of projects.

THE IUPAC-UNESCO-UNIDO SAFETY TRAINING PROGRAM

Mark C. Cesa
INEOS USA LLC, Naperville, IL 60563 USA

The IUPAC-UNESCO-UNIDO Safety Training Program allows safety training experts from developing countries to learn about safety and environmental protection by visiting plants of IUPAC Company Associates in the industrialized world. The Program is part of an initiative by the IUPAC Committee on Chemistry and Industry that includes sponsorship of Workshops on Safety in Chemical Production.

Safety Training Program Fellows are scientists and engineers 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; and have the ability to influence safety practices in their places of employment and elsewhere within their home country. Since 2000, nine Fellows from China, Egypt, Kenya, Nigeria, Turkey, and Uruguay have received training. Our recent trainees have an impressive record of success in effecting positive change in health, safety and environmental quality, and the Safety Training Program looks forward to continuing to contribute to capacity building in the developing world.

INDUSTRIAL USE OF METALS, RISK ASSESSMENT AND PREVENTION OF HEALTH EFFECTS.

Gunnar F. Nordberg
Environmental Medicine, Department of Public Health and Clinical Medicine,
Umea University, SE-90187, UMEA, Sweden

Metals are widely used in many industries. The chemical industry is based on catalysts and these are often metals or metal compounds. New applications in the electronic industry and in nanotechnology are expanding. In combination with classical large uses the total worldwide use of metals is expanding.

Human exposure as a result of industrial uses occur in the working environment, general environment in the vicinity of industries and sometimes due to the use of metal containing industrial products.

It is important to carry out risk assessments, including assessment of human exposures from various exposure media, hazard identification, i. e. to determine what potential health effects that can be caused by exposure to a particular metal or its compounds, dose-response analysis, i e to relate exposure levels to the occurrence of health effects and finally risk



characterization, i.e. to combine the exposure assessment with dose-response analysis in order to derive the number of persons that are at risk of developing adverse health effects.

Based on risk assessments, preventive measures are recommended. They may include control of the working environment, emissions to the general environment and sometimes, limiting the use of specific metals or metal compounds. In the Handbook on the Toxicology of Metals (3rd Ed 2007) these considerations are dealt with for 31 metals and their compounds.

DISTANCE LEARNING IN TOXICOLOGY: THE IUPAC CONTRIBUTION

John H. Duffus

The Edinburgh Centre for Toxicology, Edinburgh, Scotland, U.K.

The International Union for Pure and Applied Chemistry (IUPAC), through its Commission on Toxicology and Subcommittee on Toxicology and Risk Assessment, with support of the Committee on the Teaching of Chemistry, has used the IUPAC web site to promote distance learning in toxicology for chemists. After preparation of the thoroughly refereed consensus "Glossary of Terms for Chemists of Terms Used in Toxicology", a textbook "Fundamental Toxicology for Chemists" and a set of educational modules entitled "Essential Toxicology" were compiled. The glossary has recently been extended to include toxicokinetics and revised. Terms in ecotoxicology are currently being defined and an explanatory dictionary and derived book on "Concepts in Toxicology" are being written.