

THE APELL NEWSLETTER

THE NEWSLETTER OF THE UNEP IE NETWORK DEDICATED TO
AWARENESS AND PREPAREDNESS FOR EMERGENCIES AT LOCAL LEVEL

A supplement to the UNEP IE review Industry and Environment



N° 17, 1998

Awareness and Preparedness for Emergencies at Local Level

APELL and UNEP's Sustainable Production and Consumption Programme

APELL is part of EMS and ISO 14001!

Industry worldwide is coming under more and more pressure to implement Environmental Management Systems (EMS). An EMS is "part of the enterprise's overall management system. It includes the organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for implementing and maintaining environmental management. It also includes those aspects of management that plan, develop, implement, achieve, review, maintain and improve the enterprise's environmental policy, objectives and targets" (*UNEP/ICC/FIDIC EMS Training Resources Kit*, 1997). The spread of EMS has received further impetus from the International Organization for Standardization (ISO), which has issued its standard ISO 14001, "Environmental Management Systems - Specification with Guidance for Use". This is intended "to provide organizations with the elements of an effective EMS which can be integrated with other management requirements, to assist organizations to achieve environmental and economic goals" (ISO 14001: 1996E).

An effective emergency management system is an essential part of an EMS. This is recognized in ISO 14001, paragraph 4.4.7:

- ◆ The organization shall establish and maintain procedures to identify potential for and respond to accidents and emergency situations, and to prevent and mitigate the environmental effects that may be associated with them.
- ◆ The organization shall review and revise, where necessary, its emergency preparedness and response procedures, in particular after the occurrence of accidents or emergency situations.

◆ The organization shall also periodically test such procedures where practicable.

If your organization is not already using the ten-step APELL process to help you comply with this essential requirement for ISO 14001 certification, please contact UNEP IE for further information on how to start APELL.

APELL and the environmental management of industrial estates

According to UNEP IE's report on *The Environmental Management of Industrial Estates* (UNEP IE technical report N° 39, Paris, 1997): "Industrial estates play a significant role in the production and use of goods and services; however many of them also pose a substantial threat to the environment. Their size and number are expanding at a time when the world's remaining natural ecosystems are rapidly shrinking, particularly in countries undergoing fast industrialisation." More than 12,000 such estates have been documented around the world. In 1992, the following figures were recorded for industrial estates in Asia: Republic of Korea 147, Singapore 28, Thailand 23, the Philippines 63, Indonesia 117, Malaysia 166 and Japan 95.

UNEP believes that, as with individual companies, systematic and continual environmental improvement could raise the performance of industrial estates, providing benefits to companies, industrial estate management, surrounding communities and the wider environment. Many environmental services can usefully be provided by estate management, either directly or through contractors, and this can be a strong selling point to attract compa-

nies. Among many others, these services can include environmental auditing (often nowadays a compliance requirement), training and education, an environmental operations and information centre - and a general framework for emergency prevention, preparedness and response. *UNEP's APELL programme is of course available to assist industrial estate managers as well as individual companies.* APELL has already been implemented at some industrial estates, e.g. in India and Thailand.

Cleaner and safer production

Many readers will know that UNEP IE also runs the Cleaner Production (CP) programme, which is aimed at the continuous application of an integrated preventive environmental strategy to processes, products and services in order to increase eco-efficiency and reduce risks to humans and the environment. So far as the risk reduction aspect is concerned, CP tackles the risks arising from day-to-day operations, while APELL aims at prevention of the acute effects arising from sudden catastrophes.

On 28 September-1 October 1998, the Republic of Korea will host the 5th International High Level Seminar on Cleaner Production, at which the International Declaration on Cleaner Production will be launched. *The text of the Declaration is being drafted to include references to "cleaner and safer production", to emphasize the fact that cleaner production and major accident prevention are mutually reinforcing.*

After it has been launched, the Declaration will be open for signature by individuals, e.g. ministers, industry CEOs and managing directors, and other high-level public and private sector leaders.

OECD Expert Group on Chemical Accidents

(See also N° 5, pp. 1-2.) The Expert Group on Chemical Accidents of the Organisation for Economic Co-operation and Development (OECD) and UNEP's APELL programme have been working together since 1988 in the

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fields of major accident prevention and preparedness. UNEP has disseminated the OECD *Guiding Principles for Chemical Accident Prevention, Preparedness and Response*, along with a UNEP Supplementary Text. Together with WHO and the International Programme on Chemical Safety (IPCS), the two organizations produced *Health Aspects of Chemical Accidents* in 1994 (OECD Environment Monograph N° 81/UNEP IE technical report N° 19).

The Expert Group brings together government and other experts from the majority of the OECD's 29 member countries to work on "cutting edge" issues concerning major accidents. Items considered at the meeting on 1-3 December 1997 included:

- ◆ *Economic aspects of chemical accidents.* Case studies are being collected. A decision still has to be taken on whether to proceed to a guidance document and/or to an OECD recommendation.
- ◆ *SMEs.* The Swiss delegation has prepared a brochure for SMEs on chemical accident prevention and preparedness, which is to be tried out in Canada, Sweden, Switzerland, the UK and the US.
- ◆ *Review of the Guiding Principles.* To be carried out over the next two years.

◆ *Accident investigation systems.* The US delegation is currently trying to collect information about systems in OECD countries.

On 11 February 1998 the OECD Joint Chemicals Meeting, the parent body of the Expert Group, received a detailed presentation on the Group's work and gave strong support to its continuation.

(Contact: Peter Kearns, Administrator, Environmental Health and Safety Division, OECD, 2 rue André-Pascal, 75775 Paris Cedex 16, France.)

Training in the management of industrial accident prevention and preparedness

(See also N° 15, p. 2.) The UNEP IE Training Resource Package on Management of Industrial Accident Prevention and Preparedness has been issued to the following, who are invited to contact each other directly if they wish to share experiences of using it. Don't forget to let the Editor of the Newsletter know too!

◆ Ing. Adrian Gerico, National Technical University, Guernes 2230, 8000 Bahia Blanca,

Pcia. Buenos Aires, ARGENTINA (agerico@frbb.utn.edu.ar).

◆ Teresa Ribalta Bouza, National Training Centre for Sugar Industry, 172 N° 112 e/Ira y 3ra, Rpto Flores, Playa, CP 11600, Ciudad Habana, CUBA.

◆ Prof. S. A. Soliman, Dept. of Pesticide Chemistry, Faculty of Agriculture, Alexandria University, El-Sharby, Alexandria 21545, EGYPT.

Prof. J. P. Gupta, Dept. of Chemical Engineering, Indian Institute of Technology Kanpur, I.I.T. Kanpur - 208 016, INDIA.

◆ Dr P. N. Ramachandran, Deputy Director, Institute of Production Management, Kansbahal 770 034, Orissa, INDIA.

◆ Dr Ahmad Al-Shatti, Chairman, Kuwait Society of Occupational and Environmental Medicine, PO Box 1202, Gafat, Mail Code 13013, KUWAIT.

◆ Dr A. Maurans, Deputy Director, Institute for Quality Engineering, Riga Technical University, Kalku iela 1, LV-1658 Riga PDP, LATVIA.

Country Reports



Argentina (See N° 14, p. 2.) On 11 December 1997 an agreement was signed concerning the implementation of APELL in the industrial areas of Ensenada-Berisso and Puerto La Plata. Signatories included representatives of eleven industrial organizations, the Province of Buenos Aires and the three municipal governments. A Co-ordinating Group is being formed, with a view to holding a joint Seminar/Workshop during 1998.

(Contact: Sr B. Lhobet, Direccion General de Defensa Civil de la Provincia de Buenos Aires, Calle 56 N° 723 - 8°A, 1900 La Plata.)



Brazil (See N° 12, p. 3.) The city of Maceio now has its own APELL Co-ordinating Committee, with representatives of Trikem SA (formerly Salgema Industrias Quimicas), state and city civil defence departments, fire and police services, the emergency hospital and the general community. A general emergency plan has been committed to paper and individual organizations

are now further developing their own plans. The first full-scale emergency drill involving the community was held in November 1997. (Contact: Ms Linice Bonaparte, Chemical Engineer, Trikem SA, Maceio, Alagoas Province.)



China Jianxing City, Zhe Jiang Province, reported on its APELL-related activities since 1988

to the December 1994 APELL Senior Level Expert Advisory Group meeting (see N° 10/11, p. 2). Mr Cheng Xingrong, Director of the city's Chemical Accident Emergency Rescue and Civil Defence Agency, took the opportunity of a visit in March 1998 by UNEP Senior Industry Consultant, Dr Ernst Goldschmitt, to report on further progress and lessons learned in the first decade.

In general, the Jianxing programme is considered a great success. The number of serious accidents has decreased, although more than 40 still occurred over the period. These have been dealt with effectively because well-integrated preparedness plans now exist.

Technical progress has continued. Research into methods of chemical waste disposal has been carried out and applied, so that water pollution resulting in poisoning incidents is

now being avoided. Software to aid emergency management has been developed, including mapping functions and prediction of consequences. A dictionary of nuclear and chemical protection is being developed, containing more than 300 terms.

New developments in public education include dissemination of information on the symptoms and first-aid treatment of the 21 most dangerous chemicals and occasional columns in the science and technology section of the local newspaper.

Lessons learned include:

◆ The leadership of the municipal government is vital, but the other elements of society must also play their parts.

◆ A unified command system is also fundamental. Jianxing has set up a three-part system, covering overall command, on-site implementation and supply back-up, under the direction of the leader of the municipal government.

◆ The alert system has to be connected to the city's general alert system. The police receive alert calls for all types of emergency, including chemical, and call out the appropriate rescue services accordingly.

◆ All members of emergency teams should receive not less than 70 hours training a year.

◆ There is a need to highlight the importance of safety in transport of dangerous goods. The Jianxing Chemical Accident Emergency Rescue and Civil Defence Agency has started

Major accidents involving hazardous substances

Some examples of accidents in 1997

Date	Location	Substance	Cause	Outcome
January	Lahore, Pakistan	Chlorine	Transport	>25d, >125i
January	Martinez, US	Hydrocarbons	Fire	1d, >44i
21 January	Bhopal, India	Ammonia	Transport	400i
2 February	Khabarovsk, Russia	Chlorine	Explosion	1d, 208i
1 April	Acajutla, El Salvador	Chlorine	Explosion	400i
3 July	Kirikale, Turkey	Ammunition	Explosion	1d, 1i, 200,000e
4 July	Quito, Ecuador	Ammunition	Explosion	3d, 187i
14 September	Wishakhaptnam, India	Hydrocarbons	Fire	>22d, 15i, >70,000e
25 October	Stanger, S. Africa	Petroleum, benzene	Transport	34d, 2i
5 November	Antanarivo, Madagascar	35 chemicals	Storage fire	Not yet known

Source: Selected List of Accidents Involving Hazardous Substances, 1970-1998, UNEP IE.

A list for the years 1970-1989 was originally compiled by the OECD and appeared in its 1991 publication, *The State of the Environment*. With OECD's permission, UNEP IE has now extended the list to cover the years 1990-1998 and intends to update it from time to time. Our thanks to Andrea Krenz, intern with the

APELL programme in March-April 1998, for all the hard work to make this possible.

The full current list can be accessed on the APELL section of UNEP IE's website (<http://www.unepie.org>). It will also be included, along with many other documents, in the APELL Starter Kit, which is at present

in preparation and will eventually be given a limited distribution as part of UNEP IE's APELL programme activities.

If you would like a copy of the list and cannot access the Internet, please contact UNEP IE and we shall send you a copy by mail or fax.

by holding training sessions for drivers and escorts.

(Contact: State Environmental Protection Administration (SEPA), 115 Xizhimennei, Nanxiaojie, Beijing 100035.)



Colombia

(See No 14, p. 3.) Following the successful 1996 APELL Seminar/Workshop in Cartagena, 1997 activities have included:

- ◆ formation of a Co-ordinating Group, including representatives of seven industrial firms, and contacts with other private and public

stakeholders;

- ◆ visits to 30 member firms of Fundacion Mamonal, to learn about their operations and existing emergency plans and to help them with risk identification and evaluation;
- ◆ a risk identification and evaluation exercise for the community;
- ◆ development with the local authority of a proposal for a risk map for the Cartagena Industrial Zone;
- ◆ gathering into one manual all existing information relevant to emergency preparedness and response (functions and responsibilities of the various organizations, guidance on the management of chemical emergencies, etc.);
- ◆ inventory of emergency response resources

(human and material) within the different organizations;

- ◆ training, e.g. on quantitative and qualitative risk analysis, the unified system of emergency management (SUMA), etc.;
- ◆ in one community, a population census and a simulation exercise of an emergency evacuation;
- ◆ development of an APELL leaflet for distribution to local government and other institutions;
- ◆ publication on 29 October of a progress report in the local paper.

(Contact: Ing. Gonzalo Rubio Rivas, Coordinador APELL, Fundacion Mamonal, Apartado Aéreo 8318, Cartagena.)

Related Activities

1st International Congress on Emergencies in the Basque Country, 18-20 May 1998, Guggenheim Museum, Bilbao, Spain. Objectives include making known the Basque emergency management system and publicizing Basque institutions and culture. (Contact: José Ramon Zamanillo Zugadi, Emergency Aid Director, Edif. Albia II, 7a, San Vicente 8, E 48001 Bilbao, Spain.)

PETROQUIM '98 - Iberoamerican Conference on safety, occupational health and the environment for the oil and chemical industries, 28-30 May 1998, Salinas, Ecuador. (Contact: Sociedad Ecuatoriana de Seguridad y Salud

Ocupacional (SESO), Chambers 105 y Amarelis Fuentes (esquina), PO Box 7015, Guayaquil, Ecuador.)

Health and Environment Geographical Information System (HEGIS) for Europe, WHO European Centre for Environment and Health (WHO-ECEH), Bilthoven Division.

HEGIS is needed to track marked geographic variations in exposure of populations to various environmental hazards. One of its main functions is to pinpoint "hot spots" of environmental degradation and/or poor health, in order to assist decision-makers in identifying priorities and action to be taken.

"HELP!"

Do you normally receive an English-language copy of the APELL Newsletter through the post? Do you also have access to the World Wide Web?

The APELL newsletter now appears in English on UNEP IE's WWW site (<http://www.unepie.org>). If you can access this site and even download from it, please let us know so that we can stop sending you a paper copy, thus saving much needed money. Please send an e-mail to: MarieChristine.Guedon@unep.fr.

Apologies that this service is not yet available to our French- and Spanish-speaking readers.

It enables comparisons of environmental health at sub-national level between European countries, in relation to "Health for All by the Year 2000" targets.

In accordance with priorities identified at the 2nd European Conference on Environment and Health (20-22 June 1994, Helsinki), WHO-ECEH is now working on data collection requirements and the updating of existing information on accidents and occupational health, as well as on drinking water quality. (Contact: WHO-ECEH, A. van Leeuwenhoeklaan 9, Bilthoven, PO Box 10, NL-3730 AA De Bilt, the Netherlands.)

Asian Disaster Preparedness Centre (ADPC)

(see also No 12, p.4). ADPC has integrated the APELL process into its regular Disaster Management courses. Since 1995 ADPC has been implementing a four-year Asian Urban Disaster Mitigation Programme in five countries. In India, where ADPC has also been cooperating closely with the APELL-LAMP programme, this focuses primarily on industrial hazards. The Centre is generally emphasizing and encouraging links between preparedness programmes for technological and for natural disasters.

Starting in October 1996, ADPC is also launching a distance learning programme in emergency and disaster management in cooperation with the Swinburne University of

Melbourne, Australia. (Contact: ADPC, Asian Institute of Technology, PO Box 4, Klong Luang, 12120 Pathumthani, Thailand.)

Gender Responsive Environmental Planning and Management in Cities. An interagency activity supported by the UNCHS/UNEP Sustainable Cities Programme, to which APELL contributes. The aim is to produce a Source Book that follows a purposeful structure for identifying city needs and international support for gender responsive environmental planning and management. Practical lessons from cities will be the main content. (Contact: Sustainable Cities Programme, PO Box 30030, Nairobi, Kenya.)

Books and Documents

Hazard Identification and Evaluation in a Local Community (UNEP IE technical report N° 12) and *Manual for the classification and prioritization of risks due to major accidents in process and related industries* (IAEA TecDoc 727).

Now available in Croatian. (Contact: Renata Sinvocevic, State Directorate for the Environment, 10000 Zagreb, Ulica grada Vukovara 78, Croatia.)

Safety, Health and Environmental Management Systems: A Guide for Plant Managers (UNEP IE technical report N° 28). Final draft version.

Although it is hoped that this publication will be useful to safety, health and environment professionals, its main objective is to help plant managers who do not have such staff to conduct a general review of their site programmes, with a view to identifying areas requiring further action. It accordingly contains a short set of general guidelines, followed by management systems checklists for: employee safety, employee health, process safety management, emergency prevention and preparedness, transport safety, product stewardship and environmental management. Annex 1 provides reminders about good working practices in process safety. Annex 2 is a checklist of procedures which may need to be written or revised. Annex 3 consists of two guidelines on how to write specific procedures, for Permit to Work and Hazardous Waste.

Following the guidelines and using the checklists will help managers to start meeting their safety, health and environment responsibilities. In this way they will also be making a start towards complying with ISO 14001.

(Contact: UNEP IE.)

Guidelines for integrated risk assessment and management in large industrial areas (IAEA TecDoc 994), January 1998, Vienna.

Produced in the framework of the former

Interagency Risk Management Programme of IAEA, UNEP, UNIDO and WHO, aimed at promoting a broad approach to the identification, prioritization and minimization of industrial risks in a given geographical area.

(Contact: IAEA, PO Box 100, A-1400 Vienna, Austria; or UNEP IE, which has a limited number of copies.)

Reports from 4th International Conference on Safety in the Port Environment – The Human Factor

Reports from the conference held on 14-16 April 1997 in Bremen, Germany, including:

Proceedings and Conclusions; Workshop 1: Ship and Port Security; Workshop 2: Future Availability of Qualified Port and Marine Personnel; Workshop 3: Safety in Port Premises; Workshop 4: Ship/Shore Communications in Port Services.

(Contact: Port and Transport Consulting Bremen GmbH, D-28127 Bremen-Überseehafen, Hafenstrasse 55 (Hafenhochhaus), Germany.)

BLEVE. Video plus training booklet. Transport Canada/Canadian Association of Fire Chiefs (CAFC)/Propane Gas Association of Canada, 1997. Available in English and French.

Provides answers to common questions such as: What is a BLEVE and what can it do? What is a safe distance for emergency responders when a fire is close to a pressure tank? How much water is required to keep a tank cool? Does there have to be a fire for a BLEVE to occur? Sequences include 3-D animation and film footage of complete BLEVE scenarios, followed by more detailed examination of specific parameters using animated graphics.

(Contact: CAFC, 1-2425 Don Reid Drive, Ottawa, Ontario K1H 1A4. Please note that there is a charge of \$14.75 Canadian for a standard North American VHS format video and that other formats are more expensive.)

Directory of Health and Safety Software. Diskette. Canadian Centre for Occupational Health and Safety (CCOHS), Hamilton (Ontario), 1997.

Lists more than 340 software packages available from commercial and institutional suppliers in Canada and the US, including content, features, hardware requirements and ordering information. Covers emergency planning and response plus eleven other information categories.

(Contact: CCOHS Customer Service, 250 Main Street East, Hamilton, Ontario, Canada L8N 1H6. The diskette is available in both DOS and Windows and costs \$39.95 Canadian.)

HSELINE. Additional database on CD-ROM, CCOHS (as above).

Bibliographic database created by the UK Health and Safety Executive (HSE), now available through CCOHS. Contains over 175,000 citations from the international literature on safety and industrial hazards, including all publications from HSE plus materials from other international OHS institutions. About 12,000 references are added annually and most include detailed abstracts or keywords.

(Contact: CCOHS Customer Service, as above. Please note that the cost of the CD-ROM to international purchasers is \$350 Canadian.)

NIOSH Pocket Guide to Chemical Hazards. Diskette version, CCOHS (as above).

Covers hundreds of chemicals, providing information on: NIOSH and OSHA exposure limits, recommended respirator selections, chemical and physical properties, incompatibilities and reactivities, measurement methods, signs and symptoms of exposure, and procedures for emergency treatment. Chemicals can be searched by chemical name or synonym. Also available on CCOSH CD-ROM.

(Contact: CCOSH Customer Service, as above. Please note that the diskette costs \$79 Canadian.)