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

No. 16, 1997

"TransAPELL"

UNEP IE is pleased to announce that a final draft version of "TransAPELL" will be available early in 1998. TransAPELL gives guidance on how to adapt the APELL methodology, which was originally developed for fixed facilities, to preparedness planning for accidents arising in the course of the transport of dangerous goods by road, rail and pipeline. The guidance is in three parts: the TransAPELL methodology; a case study of its application, based on experiences from the two pilot projects; and a series of technical annexes.

The development of TransAPELL started in 1994, with the support of the Swedish Rescue Services Agency (SRSA) working in conjunction with John Morton, at that time the resident APELL Senior Industry Consultant. A preliminary draft went to the December 1994 APELL Advisory Group and a second, more developed version to the October 1996 APELL meeting. The project was very well received on both occasions and is clearly much in demand by APELL users.

One unusual feature is that the document has been developed through pilot projects rather than, as with previous APELL technical guidance, being developed by experts to a publishable state and then piloted subsequently. With the help of SRSA and John Morton, Kristinehamm (Sweden) and Daugavpils (Latvia) took the first draft and worked with it. The lessons from these experiences have been incorporated in the guidance.

Per Modin, Deputy Head of Fire and Rescue Services in Kristinehamm, presented his municipality's experience of working with TransAPELL to the October 1996 APELL meeting. An edited version of his address follows below.

TransAPELL in Kristinehamm

by Per Modin

Why was *TransAPELL* started in Kristinehamm?

A lot of dangerous goods traffic goes through, near or over the Kristinehamm area. There are two big main roads, a railway, one of Lake Vänern's main harbours, and air traffic to and from the airport at nearby Karlstad. The municipality has experienced a couple of dangerous goods traffic accidents. In the early 1960s it instituted a routing system for hazardous cargoes, the first in Sweden. So it has both an interest in the problem and experience in dealing with it.

How did *TransAPELL* start?

In March 1995, SRSA invited us to take part in the TransAPELL project. The first step was to organize an initial workshop. It is vital to get the right people to participate at this stage, i.e. both decision-makers and people with practical knowledge of the services concerned. If the politicians can be involved, they will be better motivated to support the subsequent development of the process. We discovered that most of the participants will not already know each other, and that it is a good idea to seat them so they can all see each other and provide them with place-signs giving their names and organizations.

One way to start is to discuss reports of real accidents. If these are not available, a case study scenario can be discussed. This worked well later on when we did it at Daugavpils, in Latvia.

About 25 stakeholders were eventually identified to take part in the initial workshop: suppliers and transport contractors; the military establishment; police, fire and ambulance services; the local hospital; railroad and port authorities; the local joint alarm centre; and municipal departments of health, environment, water, roads, and information and public relations.

It soon became clear that many participants had little or no knowledge of emergency planning. It was decided that:

- all participants should investigate what plans already existed in their own services and start setting these up where nothing was in place;
- a dangerous goods flow study should be carried out for the main roads, the railway and the port;
- the condition of the roads along which dangerous goods traffic was currently being routed should be investigated, since this could cause accidents.

***TransAPELL* organization**

It was decided at the outset that Kristinehamm should have a functioning TransAPELL programme within two years. At the start, meetings of the TransAPELL group were held every month, in order to force people to move forward with their tasks and be able to present results. At the third monthly meeting it was decided to create four subgroups, for Transport, Port, Disaster Planning and Information. Eventually the main TransAPELL group was able to drop back to twice-yearly meetings, while each sub-group continues to meet three to four times a year. There are now also "mini-TransAPELL" meetings of operational staff from the various services, in order to learn about each other's functions.

Transport routes

The railway authority was easily able to supply information on types and quantities of dangerous goods carried. About 30 substances were regularly transported by rail, but the majority of journeys involved just six substances: chlorine, carbon sulphide, ammonium nitrate, sulphuric acid, liquefied petroleum gas (LPG), and chlorohydric acid. Chlorine and LPG were assessed as presenting the greatest risks, so these were the objects of special study. The port deals mainly with ethanol and petroleum.

A video camera surveillance study was carried out on four different days at seven places on the main roads. This showed that 3300 heavy goods vehicles had passed, of which about 7.5% contained dangerous goods includ- ☞

UNITED NATIONS ENVIRONMENT PROGRAMME INDUSTRY AND ENVIRONMENT
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39-43 QUAI ANDRÉ CITROEN
75739 PARIS CEDEX 15FRANCE
TEL. : 33 (01) 44 37 14 50
FAX: 33 (01) 44 37 14 74
E-MAIL: unepie@unep.fr
http://www.unepie.org

EDITOR:
J. Stevens

EDITORIAL BOARD:
J. Aloisi de Larderel, G. Baker,
O. El Kholy, J. Makris, A. Rojas Gutierrez

ing petroleum, diesel and chlorohydric acid. These inquiries gave us a fairly good idea of what to expect in the case of an accident.

We also did a project on the connections between the condition and direction of the road and the potential consequences of an accident, e.g. the combination of a narrow, curving road near springs and other water systems, water purifying plants, earth deposits and bedrock. This enabled us to identify and map the locations where the worst environmental damage could occur and thus to consider remedial measures such as roadside barriers. When I looked back through the Fire Department's records for the last ten years, I could see that many of our real-life accidents had in fact happened in exactly those places. So a cheaper, if less precise, way to do this study would be to compare records of real accidents with the local geography.

Emergency plans

The TransAPELL Group discussed emergency plans for as many emergency situations as possible, so as to use the knowledge of the whole group. For example, the Fire Brigade lacked a plan for dealing with a train derailment. It turned out that the railway authority had a detailed plan for this, on which the fire service could draw. Other weaknesses identified were:

- decontamination procedures for patients arriving at the hospital;
- police planning for how to handle traffic flow and how to safeguard property in the case of a major evacuation;
- water authority planning for partial or compete interruption of water supplies.

Answers to all these problems turned out to be available, but they were not widely known or documented.

Exercises

By November 1995 we were ready to test our new level of preparedness. Two exercises were held, one theoretical and one practical.

The theoretical event was held at fire brigade HQ. The municipal council and the press were invited. and a press conference was held at the end. Two exercises were tackled. The "simple" one involved pollution of the lake, which supplies the city's drinking water, by a diesel spillage. Plans had been made for this contingency, which worked out quite well.

The more complicated scenario concerned a crash at the railway yard involving wagons containing ammonia. A small leak grew worse, and it was necessary to sound the alarm signal for an "Important Message", i.e. indicating that people should go inside, close doors and windows, and listen to the radio. One of the decisions to be taken was whether or not to evacuate 2000 people. Where would they go? How would they be fed? Where would they sleep? How would their property be protected during their absence? How would they be brought back? It became evident that the police and the city authorities were not able to answer these and other questions and that further planning was needed.

The practical exercise concerned 20 soldiers involved in an accident with a lorry carrying ammonia. Eight people were contaminated. One was taken to hospital in a private car, causing enormous problems when he arrived at the emergency entrance still in a contaminated condition. The others were decontaminated by the fire brigade with water, at 4°C. So the main problem was keeping the victims warm until the ambulances arrived.

Practical exercises had been held annually for the previous fourteen years. However this one saw a noticeable improvement in cooperation between the various services, due to the TransAPELL work.

Real-life lessons

During this period we were lucky, or unlucky, enough to have some real accidents. Fifteen tonnes of hydrochloric acid were spilt on a field after a vehicle crash. Two LPG tanks were derailed and nearly turned over. We took pictures and drew up reports, so that everybody could learn from what happened.

On another occasion some schoolchildren found a radioactive medical preparation in the street. They gave it to their teacher, and the police removed it to the forest before the fire brigade got the information. We were able to establish that it was harmless as long as the glass cylinder was intact. This practical activity took about 20 minutes in total. At this point the problems really started, as we experienced very intense demands for information from the media. So we learnt that even a small and almost harmless accident can require hours of effort issuing press releases and holding press conferences.

Conclusion

The plan is to extend the TransAPELL process more widely and to continue building awareness and preparedness for the possibility of dangerous goods transport accidents. Once adopted, TransAPELL becomes a way of life.

Postscript

Since this report was made last year, there have been two further developments:

- The roads administration has started to build protection alongside the road close by the freshwater reservoir.
- Kristinehamm's fire and rescue service has been amalgamated with those of five other communities, in order to save money. The Kristinehamm TA group took this opportunity to arrange a small TransAPELL workshop for a total of 58 people from the other communities. These have now decided to start TransAPELL themselves and will hold their own workshops in early 1998.

News from the Secretariat

Dr Ernst Goldschmitt joined UNEP IE on 1 October 1997 as APELL's new Senior Industry Consultant, following John Morton, David Thwaites and Bob Young. He is seconded to UNEP by Bayer Chemical (Germany) through the Conseil Européen des Fédérations de l'Industrie Chimique (CEFIC), with support from the International Council of Chemical Associations (ICCA).

Dr Goldschmitt began his career with Bayer in 1975 as a research chemist and was a plant manager from 1989 to 1992. From 1982 to 1992 he worked abroad, first in southern Africa and then in India.

In 1982 he became Works Manager for Bayer South Africa (Pty. Ltd.), with responsibility for factories in Johannesburg and Paarl/Cape Town. He also set up a new factory near Johannesburg and led the planning, construction and commissioning of small-scale formulation plants in Maputo (Mozambique) and Harare (Zimbabwe).

In 1988 he moved to India, where he was initially Works Director and then from 1990 Technical Director of Bayer (India) in Thane, responsible for production and services on a site where agrochemicals, rubber chemicals and pharmaceuticals were produced for local consumption and export. During this period he initiated and chaired a grouping of chemical manufacturing companies in the area, with the objectives of improving safety standards, emergency planning and response (together with the district government and the municipality) and re-zoning of industrial and residential areas so as to minimize the risk to the neighbouring population in the case of chemical accidents.

Since 1993 Dr Goldschmitt has been Head of the Department for Environmental Protection at the Bayer works in Wuppertal and Brunsbüttel.

UNEP is delighted to welcome Dr Goldschmitt and thanks Bayer, CEFIC and the ICCA for making this secondment possible.

CAMEO in Bahia Blanca

In Bahia Blanca, Argentina, the Commission or sub-group on risk analysis and evaluation *(see also under "Country Reports" below – Argentina)* has been working with Computer

Aided Management of Emergency Operations (CAMEO) to develop a local information system on hazardous chemicals, which will assist users at all ten steps of the APELL process.

The sub-group spent three months training its members in use of the software and adapting it for local requirements. It has since been gathering data from all participants in the APELL process through the use of specially designed forms.

Local maps are being edited in MARPLOT to put information on facilities, routes, population densities, location of hospitals and fire departments, etc. into easily accessible visual form. "An important tool in MARPLOT is the ability to zoom in for closer looks.…Soon the streets surrounding facilities can be seen and also....buildings with the most hazardous chemicals. Suddenly icons cover the plan, each one representing the location of a particular chemical."

Consequence analyses have been carried out for purposes of emergency response planning. Preliminary results were achieved using models found in the literature and programming the simulation in Mathcad. Further studies simulating chemical dispersion incidents were undertaken using Areal Locations of Hazardous Atmospheres (ALOHA), which can be interfaced with an existing air monitoring station for acquisition of real time atmospheric data. There are plans to purchase other computer tools to complete the risk assessment studies.

(Contact: APELL Process Coordinator, as below under "Country Reports" – Argentina.)

Editor's Note: We shall be happy to publish other contributions describing readers' experiences of using CAMEO in future issues.

MIACC's Safer Communities Initiative

The Major Industrial Accidents Council of Canada (MIACC) is a multi-stakeholder body which brings together all participants in the process of technological accident prevention, preparedness and response in Canada. Like APELL, MIACC was a response to the Bhopal disaster and other tragedies of the 1970s and 1980s. MIACC celebrated its tenth anniversary in 1996; APELL's tenth birthday will be in 1998.

MIACC develops guidance on accident prevention and preparedness, sponsors training courses, and runs the very successful series of annual "Prevention, Preparedness and Response" (PPR) conferences. It is now focusing on local-level implementation of its products and services through a "Safer Communities" initiative. One part of this is the Community Preparedness Program, which targets over 500 Canadian municipalities with significant chemical risks – List 1 sites, in the terms of MIACC's own site classification system. (List 1 substances, if used/stored/handled in quantities greater than the listed threshold, have a high probability of causing fatalities off-site.)

Canada has a number of laws requiring some level of emergency planning, but none is specific to chemical hazards and none describes specific procedures to reduce risk and respond appropriately to chemical accidents. The program will accordingly promote the voluntary approach to local collaboration between industry, the municipality and the community. Federal, provincial and territorial governments, chemical and other related industry associations, and individual companies are all being asked to work with municipalities in cooperating with the program.

List 1 municipalities are being asked to complete a self-evaluation of their state of preparedness for chemical accidents, against criteria established by MIACC, and a questionnaire, the data from which will help MIACC and provincial and territorial governments to identify where additional help is needed.

MIACC will offer a certificate of achievement to municipalities which meet all the preparedness criteria.

(Contact: MIACC, 265 Carling Avenue, Suite 600, Ottawa, Ontario K1S 2EN.)

APELL Case Studies

Further to the announcement in Newsletter 15, Vol. 20 No. 3 of the *Industry and Environment* review is now available. As well as general articles about the current state of major accident prevention and preparedness around the world, it contains case studies of local APELL implementation in the following communities: Shanghai (China), Barranquilla (Colombia), Kolin (Czech Republic), Madras (India), Jelgava (Latvia) and Gabès (Tunisia).

APELL Newsletter readers in developing countries who do not receive the "review" may obtain a copy of this issue free of charge by writing to UNEP IE. Readers in OECD countries may purchase a copy by writing to: SMI (Distribution Services) Ltd, PO Box 119, Stevenage, Hertfordshire SG1 4TP, UK.

Country Reports

Argentina

(See No. 8, p. 3, No. 13, p. 3 & No. 14, p. 2.)

The APELL Coordinating Group in Bahia Blanca, Buenos Aires Province, has set up four commissions or sub-groups, covering evaluation and risk analysis; emergency response; awareness and diffusion; and press and finances. The first group has been working extensively with CAMEO, and a more detailed report of its findings is given above ("CAMEO in Bahia Bahia").

The emergency response group has prepared an integrated emergency plan, based on models from Moore (Canada) and Tarragone (Spain). Once the review process has been completed, a full-scale drill will be carried out. The group will also be responsible for organizing first responder training and is currently developing programes for medical responders, with the help of a team including plant medical staff.

The awareness and diffusion group carried out an opinion poll, both to find out what people wanted to know about emergency preparedness and to find out their current level of knowledge, as a baseline for measuring future progress in providing information to the public. Meetings between plant managers, first responders, local politicians and community representatives have been organized.

Seminars on risk communication were organized for members of the Coordinating Group and the four sub-groups in October 1996 and October 1997.

(Contact: Ing Nestor H. Sposito, APELL Process Coordinator, Petroquimica Bahia Blanca, Av. San Martin SN, 8103 Ing White, CC555, 8000 Bahia Blanca.)

Czech Republic

(See No. 6, p. 2, No. 7 p. 2, No. 10/11, p. 3 & No. 14, p. 3.)

On 29 September-3 October 1997, 150 representatives of response authorities from the Czech Republic and the "Dresden Industrial Triangle" in Germany attended a seminar on "Prevention of Industrial Emergencies and Emergency Response Planning" held in Most. They had all been involved in responding to a large fire in November 1996 at the Most Chemopetrol Refinery and were taking the opportunity to learn from that experience and to draw up improved emergency response plans. A representative of the APELL programme also attended.

European Union legislation on Major Accident Hazard (MAH) plants, with which it is proposed to align Czech legislation, was

presented. A large live exercise was undertaken, including triage of "victims". This was well covered by the press. Videos have been made both of the original fire and of the exercise.
(Contact: Occupational Safety Research Institute (OSRI), Jeruzalemska 9, 116 52 Prague 1.)

India

(See No. 6, p. 3, No. 8, p. 3, No. 9, p. 3, No. 10/11, p. 3, No. 12, p. 3 & No. 14, p. 3.)

The five-year APELL-LAMP (Local Awareness and Mitigation Programme) project carried out by the National Safety Council with the support of the World Environment Centre (WEC) was completed in June 1997. However, the National Advisory Committee constituted under the project has agreed that the activities initiated should continue in the six pilot areas.

Meanwhile the Ministry of Environment and Forests has issued the Chemical Accidents (Emergency Planning and Response) Rules 1996. These provide for the constitution of Crisis Groups at central, state, district and local levels, with a broad-based membership very much along the lines of an APELL Coordinating Group. The Groups' responsibilities include:

- overall responsibility for chemical accident awareness, preparedness and response;
- the constitution of a crisis alert system, including a central control room and an information networking system between the various levels of government;
- provision of information to the public.

The National Safety Council has welcomed the Rules as a valuable boost to the development of chemical emergency preparedness in all the industrial areas of the country.
(Contact: National Safety Council, PO Box 26754, CLI Building, Sion Bombay 400 022.)

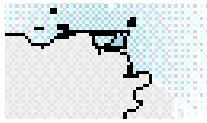
Russian Federation

(See No. 6, p. 3 & No. 10/11, p. 4)

In January 1997 the State Committee of the Russian Federation for Civil Defence, Emergencies and Elimination of the Consequences of Natural Disasters (EMERCOM) agreed with representatives of the Swedish government to hold a series of APELL workshops in the Barents region of north-west Russia.

The first workshop, with 48 participants, was held on 12-14 May 1997 in Petrosavodsk, Republic of Karelia. Industry in Karelia is undergoing major restructuring, and there is concern that this may lead to lower safety levels. Following presentations of the local situation and the APELL process, participants carried out two role-playing exercises, one concerning a severe traffic accident and the other a chlorine escape from a factory. These exercises showed both the importance of local level coordination and the need to adapt emergency plans originally drawn up for war situations to current peacetime problems. They also highlighted the lack of available information concerning both handling of hazardous materials at fixed facilities and dangerous goods transport flows. The Trans-APELL project in Kristinehamm was presented, including the practice of working through a number of smaller sub-groups in order to make efficient use of time.

It was agreed that the APELL principles should be accepted for Petrosavodsk and that a second workshop should be planned for the Murmansk area.
(Contact: Swedish National Rescue Services Agency, Raddnings Verket, S-65180 Karlstad, Sweden.)



Trinidad and Tobago

(See No. 4, p. 2 & No. 8, p. 4)

A workshop on "Reducing the Impact of Industrial Disasters" was held on 8-10 October 1997 in Port of Spain as part of Trinidad's activities in connection with the International Decade for Natural Disaster Reduction (IDNDR). Trinidad has worked with the APELL process and programme ever since its participation in the July 1990 Regional APELL Workshop for Latin America and the Caribbean. APELL was accordingly presented at this workshop.

The National Emergency Management Agency (NEMA) is currently initiating a community awareness and preparedness project, using the APELL approach, in three industrial areas (Sea Lots, Point Lisas and Point Fortin-La Brea). This will be aimed not only at improving community awareness and emergency response capability, but also at installing early warning and safety information systems in the community and at initiating a research project through the University of the West Indies for safe haven construction of one room in homes close to industrial areas.
(Contact: NEMA, Ministry of National Security, NBS Radio Building (Ground Floor), 17 Abercromby Street, Port of Spain.)

Related Activities

- *Workshop on Safe and Clean Industrial Development in Cold Climate and Ice Conditions.* 11-13 August 1997, Rosersberg, Sweden.

A contribution to the work of the Arctic Council Programme on Emergency Prevention, Preparedness and Response (EPPR). Topics covered included: international cooperation; risk analysis; prevention and preparedness in industrial activities; hazardous transport activities on land; oil spills at sea; and Swedish policies and resources in this area.
(Contact: Ministry of Defence, S-103 33 Stockholm, Sweden.)

- *World LPG Forum.* Annual meeting organized by the World LPG Association (WLPGA) and held this year on 15-17 October 1997 in Buenos Aires.

Safety was an important theme, and the APELL process and programme were presented.
(Contact: WLPGA, 4 avénue Hoche, 75008 Paris.)

- *Health Crisis and the Internet – an International Meeting on Harnessing the Internet for Disasters and Epidemics.* 18-21 November 1997, Santa Fe de Bogota, Colombia. WHO, Pan American Health Organization and Ministry of Health of Colombia.

The objective was to exchange information and make recommendations on using the Internet for preparedness planning, strategic decision-making, and operational coordination of health crises. Expected outputs included: case studies on the use of Internet for disaster reduction and the detection and control of epidemics; identification of existing information resources; and new electronic links among agencies and individuals involved in early disease outbreak warning and disaster mitigation and preparedness.
(Contact: WHO, EMC Division, 20 Avenue Appia, CH-1211 Geneva, Switzerland; or PAHO, Emergency Preparedness Programme, 525 23rd Street NW, Washington D.C. 20037, USA.)

- *APOSHO 14 – 14th Annual Conference of the Asia-Pacific Occupational Health and Safety Organization.* 21-23 April 1998, Seoul, Korea. Korea Industrial Safety Corporation (KISCO).

The theme is "Safety Together". Session topics include: managing health and safety at work; safety engineering and technology; hazard identification and risk assessment; construction safety; occupational health; industrial hygiene; occupational ergonomics; and safety culture and OSH training.
(Contact: KISCO, 34-4 Kusan-dong, Pupyung-gu, Inchon, Korea 403-711.)