Awareness and preparedness for emergencies at local level – UNEP’s APELL programme

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Introduction
Awareness and preparedness for emergencies at local level (APELL) is a tool developed by the United Nations Environment Programme's Industry and Environment office (UNEP IE), in conjunction with governments and industry. Its purpose is to minimize the occurrence and harmful effects of technological accidents and emergencies, particularly, though not exclusively, in developing countries. APELL was launched in 1988, following various industrial accidents which had adverse impacts on health and the environment – Bhopal in 1984 and the Sandoz warehouse fire near Basel in 1986, which resulted in extensive contamination of the Rhine, are obvious examples.

This paper describes the APELL process and some of the tools which have been developed to implement it, especially the APELL Handbook. Some of the activities of UNEP’s APELL programme are also described and examples of APELL implementation are given. Finally the future of APELL is considered.

It is suggested that APELL is useful in any situation which requires joint planning for disasters by several parties, e.g. government, industry and local communities. Being aware and prepared means having workable, realistic plans in the event that an accident does occur. It also means creating a better understanding of local hazards, which in turn should lead to actions designed to prevent accidents from happening at all.

The APELL process
Why APELL?
It is now universally acknowledged that every disaster, whatever the cause, may have an environmental impact. While some major industrial accidents can be contained within the boundaries of the plant, in other cases there are impacts on the surrounding neighborhood, with adverse short- or long-term consequences affecting life, life-support systems, the social fabric or property. This is even more true of accidents arising from transport of dangerous goods, e.g. by road, rail or pipeline, through or close to populated areas, since by definition there is no boundary fence in these cases. The extent of the losses so caused depends to a large extent on the actions of the first responders to an emergency, at the scene of the accident and within the community around it.

Clearly, adequate response to such situations calls for co-operation between various institutions and individuals. This can be achieved only if there is awareness within the community of possible risks and of the need for joint preparedness to cope with their consequences. The APELL Handbook describes a process for improving community awareness and emergency preparedness and achieving co-operation between the various parties involved.

What is APELL?
APELL consists of two parts:
1. provision of information to the community, referred to as “community awareness”;
2. formulation of a plan to protect people, property and the environment, referred to as “emergency response”.

APELL addresses all emergencies with potential for fire, explosion, spills or releases of hazardous materials. The possibility of “combination accidents” should be noted at this point; for example, an earthquake which triggers an emergency in a chemical factory. The determination of which potential hazards should be covered by the APELL process is in principle the result of a risk assessment. In most cases, however, common sense will be sufficient to identify the facilities or areas which present a risk of a major accident. The criteria (lists of substances and threshold levels) given in international or national regulations or recommendations may also provide guidance.

APELL is flexible. Countries differ in culture, value systems, legal and regulatory requirements, community infrastructure and response capabilities and resources. Their industries present different potential dangers. However, they have one common need – the need to cope with a major technological accident affecting a local community.
APELL Handbook provides the basic concepts for the development of action plans which can be adapted to local conditions. No legislation or regulation is needed. Since the containment of health and environmental impacts depends on the speed and scope of the initial local response, emphasis is placed on local participation. However, it is recognized that national governments and the chief executive officers of industries have a fundamental role in promoting and supporting these local efforts. Industry associations also have an important part to play in encouraging industry participation.

The APELL process consists of ten steps, as follows:

1. Identify the emergency response participants and establish their roles, resources and concerns;
2. Evaluate the hazards and risks that may result in emergency situations in the community;
3. Have participants review their own emergency response plans for adequacy relative to a co-ordinated response;
4. Identify the required response tasks not covered by existing plans;
5. Match these tasks to the resources available from the identified participants;
6. Make the changes necessary to improve existing plans, integrate them into an overall community plan and gain agreement;
7. Commit the integrated community plan to writing and obtain approval from local governments;
8. Educate participating groups about the integrated plan and ensure that all emergency responders are trained;
9. Establish procedures for periodic testing, review and updating of the plan;
10. Educate the general community about the integrated plan.

The APELL Handbook describes the content of each step and provides a checklist for completing it.

Who are the APELL partners? What are their responsibilities?

At the local level there are three very important partners who must be involved if APELL is to succeed:

1. Local authorities. These may include provincial, district, city or town officials, either elected or appointed, who are responsible for safety, public health and environmental protection in their area.
2. Industry. Industrial plant managers from either state-owned or private companies are responsible for safety and accident prevention in their operations. They prepare specific emergency measures within the plant and review their application. But their responsibilities do not stop at the boundary fence. As leaders of industrial growth and development, they are in the best position to interact with local authorities and community leaders in order to create awareness of how the industrial facility operates and how it could affect its environment and to help prepare appropriate community response plans in the event of an emergency. The involvement and active participation of the workforce is also very important.
3. Local community and interest groups. Such as environmental, health, social care, media and religious organizations and leaders in the educational and business sectors, who represent the concerns and views of their members or constituents in the community.

There are other partners, e.g. non-governmental organizations (NGOs). The APELL process is designed to harmonize with other initiatives to reduce risks and their consequences, not to replace them.

How can an APELL project be started?

The APELL process may be initiated by any member of the three involved groups: industry managers, local authorities or community leaders. However, there must then be direct and close interaction between the representatives of the three partners. A “bridge” is created by means of the ‘APELL Co-ordinating Group’. This is the mainspring of the process. The group does not itself have any operational role during an emergency but exists to prepare the various partners to be ready and to know their tasks if an accident does occur. Members must be able to command the respect of their various constituencies and be willing to work together in the interests of local safety, wellbeing and property security. In particular local plant managers need to be active participants and local authority and community leaders need to know that they are acting with the blessing and full authority of the most senior managers in their companies. The leader of the co-ordinating group should ideally be able to ensure the motivation and co-operation of all segments of local society, regardless of cultural, economic, educational and other dissimilarities, and this needs to be borne in mind when choosing the leader.

The APELL process is designed to build on any and all existing emergency plans to create a co-ordinated single local plan. There may be national government emergency plans in place, but there is always the need for
an effective structure at local level. Industrial facilities should already have on-site emergency plans. Local authorities and rescue services should have plans to deal with the consequences of major emergencies. Local hospitals should certainly have their own "major accident plans" for dealing with large numbers of seriously injured people. The APELL process ensures that all existing plans contribute to the overall integrated, cooperative plan.

How can community awareness be created?
Citizens want to know if potentially hazardous materials are being produced, stored, used or transported in their communities. In addition they need to be informed about potential risks in order to understand why an emergency plan has been established, how it works and what action they are expected to take in an emergency.

There is really nothing mysterious about a community awareness programme. A fenced-in industrial plant can look threatening to the public, but much of the mystery disappears when people know what the plant uses and manufactures and know that it has a good safety record and that an effective emergency plan exists.

No one can prescribe the activities necessary for a local awareness programme that will fit every community. However, the following points should be considered:
• define the local community concerned;
• list existing local community contacts;
• contact other industrial facilities to coordinate community activities;
• plan an initial meeting of the APELL Co-ordinating Group;
• develop fact sheets or kits on each industrial operation;
• develop fact sheets on community preparedness;
• assign responsibility for communications tasks;
• look for communication opportunities;
• select methods of communication suitable for local circumstances;
• get outside help;
• inform employees.

In preparing and building community awareness the following should be borne in mind:
• all parties active in the APELL process have a duty to keep the public informed about progress and to ensure that the public does not receive conflicting messages;
• developing relationships with the media requires time and effort from everybody concerned;
• media relations efforts, like local co-operation programmes, cannot be started after trouble has already arisen.

How can preparedness for emergencies be achieved?
Among the first steps in the planning process are the gathering of information and the assessment of the current situation. Therefore one of the first tasks faced by the APELL Co-ordinating Group is the collection of basic data. This can be done by personal contacts or by more formal surveys, in order to:
• identify local agencies making up the community’s potential awareness and preparedness network;
• identify the risks which may lead to an emergency;
• establish the current status of community planning and co-ordination and ensure that potential overlaps are avoided;
• identify the specific community points of contact and their responsibilities in an emergency;
• list the kind of equipment and materials for emergency response which are available locally;
• identify the organizational structure for handling emergencies;
• check if the community has specialized emergency teams to respond to releases of hazardous materials;
• define the community emergency transport network;
• establish the community procedures for protecting citizens during emergencies;
• set up a mechanism which enables responders to exchange information or ideas with other parties during an emergency.

These are only some of the major issues which will have to be resolved within or by the co-ordinating group. More details can be found in the APELL Handbook.

UNEP IE’s APELL programme
UNEP IE’s role in the development of the APELL programme is a catalytic one. A minimum core staff (a co-ordinator and two-thirds of a secretary) provide back-up and the development of further tools to support the APELL process and also organize or broker expert technical support for APELL pilot and demonstration projects wherever possible. These projects are undertaken increasingly in partnership with other organizations, national or local but also international. Field work has been and is being undertaken in cooperation with the UN Department for Humanitarian Affairs, the UN Centre for Human Settlements (Habitat) and the World
Environment Centre (WEC), a US-based NGO. Some examples of concrete APELL projects are described in the following section (“APELL worldwide”).

The main APELL tools and publications developed by UNEP IE are:

The APELL Handbook
Since its launch in 1988, more than 10,000 copies have been distributed worldwide in English, French and Spanish. The handbook has also been translated into 17 other languages: Arabic, Chinese, Croatian, Czech, Estonian, Hindi, Hungarian, Indonesian, Italian, Korean, Latvian, Lithuanian, Polish, Portuguese, Russian, Thai and Turkish. The handbook is designed to help people start putting APELL into practice themselves.

The APELL Newsletter
The Newsletter appears twice a year in English, French, Spanish and Chinese. From Issue No. 15, the first of 1997, it is being published in English as an integrated part of UNEP IE’s main periodical publication, Industry and Environment Review. UNEP IE will continue to distribute it, in English, French or Spanish as appropriate, to APELL users who are not subscribers to the Review. The Newsletter keeps readers informed of current APELL or APELL-related activities, as well as national and regional programmes and APELL-related events.

Computer assisted management of emergency operations (CAMEO)
The United States Environmental Protection Agency (US EPA) has adapted its CAMEO software for international applications by APELL users worldwide. (NB this software is not available directly from UNEP IE.) A Windows-based version is just now becoming available. Efforts are also being made to make CAMEO available in Spanish.

APELL-related publications
1 UNEP IE Technical Report Series:
   • 3, Storage of Hazardous Materials;
   • 8, International Directory of Emergency Response Centres (joint publication with OECD, currently under revision);
   • 12, Hazard Identification and Evaluation in a Local Community (with the support of the Swedish government);
   • 19, Health Aspects of Chemical Accidents (joint publication with OECD, WHO and IPCS);
   • 21, APELL Annotated Bibliography (with the support of the Canadian government); and in preparation:
   • 28, Safety, Health and Environmental Management Systems;
   • 35, “TransAPELL” (APELL for accidents arising from the transport of dangerous goods).
2 APELL for Port Areas (joint publication with IMO).
3 APELL Worldwide– a set of 12 national overviews of APELL implementation, in: Brazil, China, India, Mexico, Colombia, the Philippines, Thailand, Tunisia, The Czech Republic, Hungary, Latvia and the Russian Federation.

UNEP IE also distributes the OECD’s Guiding Principles for Chemical Accident Prevention, Preparedness and Response and associated publications.

APELL worldwide
Since its inception in late 1988 APELL has been introduced in about 30 countries around the world. Regional or sub-regional APELL seminars/workshops have been held for:
• Latin America and the Caribbean (Mexico City, 1990);
• Former USSR (Moscow, 1991);
• Countries of West Asia (Cairo, 1993);
• Asia and the Pacific (Shanghai, 1993);
• Baltic States (Latvia, 1994; Estonia, 1995);
• Southern Latin America (Santiago, 1995).

National and/or local events have been held in:
• Argentina (1996);
• Bahrain (1989);
• Brazil (1990, 1992 and 1995);
• Chile (1995);
• Colombia (1990, 1996);
• Czech Republic (1992);
• Egypt (1992);
• Hungary (1992);
• India (1992, 1994, 1995, 1996);
• Indonesia (1994);
• Korea (1996);
• Mexico (1993, 1995);
• The Philippines (1990);
• Russian Federation (1994);
• Tunisia (1990, 1991);
• Turkey (1991);
• Venezuela (1995, 1996);
• Yemen (1992).

Some of these events, particularly in India and Mexico, have been organized with and through the World Environment Centre’s Local Awareness and Mitigation Programme (LAMP).

TransAPELL has been piloted in Sweden and Latvia, in cooperation with the Swedish National Rescue Services Agency.
Some examples follow of APELL-related activities in different countries.

**Bahrain**

Recommendations from the APELL Workshop held in November 1989 included the creation of an APELL Co-ordinating Group and programme; completion of response manuals and of the National Plan for Emergency Response; and the organization of drills and training programmes. Law No. 5 of 1990, issued by the Amiri Decree, accordingly defined goals, objectives and mandate for civil defence to revise the National Plan for Emergency Response, aimed at properly structured and effective response mechanisms for each major industry and firm. The APELL national committee has enhanced the co-ordination between all major firms and between them and the government departments concerned. Major industrial firms have their own fire and safety staff but civil defence and the fire service are also summoned to incidents and co-operate in conjunction with plant management and technical staff. During the last four years major joint exercises have been held at Bahrain International Airport, the BAPCO refinery and at an LPG store in a marine terminal. Environmental impact assessment, including risk assessment, is carried out for all projects, with special reference to storage, handling, and disposal of chemicals and hazardous materials.

**Chile**

Three APELL events were held in Chile during 1995 to introduce APELL and catalyse its implementation; a national event in Santiago and two local events in Valparaiso and Concepcion.

The local event in Concepcion, arranged under the auspices of the UNEP/Habitat Sustainable Cities Programme (SCP), took place against the background of a fire in San Vincente Bay, which almost destroyed a refinery. Good local industry support was received from Dow and Oxychem. Land use planning, hazard identification, transport of hazardous materials and community participation were all important issues. The workshop has led to the establishment of an active APELL Co-ordinating Group. The University of Concepcion is in the process of establishing a computer link with the fire department and will be creating its own emergency preparedness centre, using CAMEO. Additionally, the co-ordinating group is continuing to assemble an inventory of dangerous materials in the community. Finally, a local group went to India, with support from SCP, to observe a local emergency planning commission and learn from its operational experiences.

In September 1996 a workshop on “APELL for Port Areas” was held in Valparaiso. On 27-29 November 1996 a workshop was held in Iquique to introduce APELL to Chile’s northernmost region. An international congress on “Safety on Sea and in Ports” was held in Valparaiso in May 1997.

**India**

The gas leak at the Union Carbide pesticides plant in Bhopal in December 1984 killed more than 1,750 people outright. In April 1993 it was reported that the total death toll until that date had been officially estimated at 3,828. Eight Union Carbide officials were at that time under indictment for culpable homicide in connection with the accident.

India has an extensive legislative and regulatory framework for major hazard control and environmental protection. At the December 1994 meeting of the APELL Senior Level Expert Advisory Group, the representative of the Ministry of Environment and Forests reported that further measures were being undertaken to strengthen off-site emergency management:

- hazard analysis in 15 industrial pockets;
- preparation of model off-site emergency plans;
- creation of three chemical emergency response centres;
- funding of three levels of accident prevention and preparedness training in seven institutes.

At local level the National Safety Council (NSC), an autonomous body of the Ministry of Labour, is implementing a national level action programme (AP) on chemical emergency prevention, preparedness and response, focusing on a number of high-risk industrial areas in different parts of the country plus national level activities. Support has been given through WEC’s LAMP programme.

The Manali-Ennore industrial area near Madras was selected for an initial APELL pilot project, which began in October 1992. An Emergency Preparedness Committee had already been set up in September 1990, with input from about 20 local industries. It has prepared and distributed 10,000 copies of a book on public awareness and a video in Tamil and English has been made for use at village level. The committee has also published a condensed version of the area off-site emergency plan to introduce the topic to concerned government agencies. The plan was tested in April 1994, a very worthwhile
exercise as it was found to need a number of improvements.
APELL has since been introduced in Thane-Belapur (near Bombay), Kanpur (Uttar Pradesh), Cochin (Kerala), Haldia (West Bengal) and Baroda (Gujarat). In-depth follow-up has included training courses on “Chemical emergency preparedness”, based on the course developed by US EPA; a seminar on “Emergency medical response to chemical disasters” and audits of public hospitals; hands-on training courses on “CAMEO for first responders” and distribution of CAMEO software; table-top exercises; and mock emergency drills.

In 1995 a three-day workshop on “Community Awareness” was developed. This has since been conducted in a number of local areas. During 1996 a module on transportation of hazardous materials was developed and piloted in Mumbai and Madras.

The future of APELL
At the October 1996 meeting of the APELL Senior Level Advisory Group, recommendations included:

• a 1997-99 APELL three-year work programme which reflects the contributions being made within partner countries and by partner organizations and which concentrates on helping those who are willing to help themselves and others;

• enhancement of the existing APELL tools and development of new ones, particularly an “APELL Starter Kit” to support the implementation of APELL after an initial national introduction;

• further communication of APELL’s “unique selling points”, e.g. its contribution to accident prevention and mitigation and thereby to industry cost control and its contribution to community empowerment;

• regional information exchange and mutual support to be developed through UNEP regional offices;

• involvement of other industry partners, e.g. the possible role of the insurance industry.

It is certainly the case that further progress will depend crucially on commitment by partners at national and local level to make APELL “stick”. UNEP IE in turn is committed to supporting those partners with information and expertise.

Conclusion
There is a widespread and growing demand for APELL from governments, industries and communities all round the world. APELL has established itself as a tool for self-help in the process of creating co-ordinated emergency plans and agreeing and implementing awareness and preparedness programmes. It has proved to be easily adaptable to existing initiatives and local circumstances.

It is certain that we shall never be able to say how many accidents APELL has helped to avert. However, the programme has contributed to raising general awareness of the major accidents issue and to starting concrete activities to build up local and national capabilities for the prevention of accidents and for the mitigation of their effects should they nonetheless occur. In this sense it has certainly begun to fulfil its purpose, although there are still many countries to go before its objectives can be said to have been completely achieved.