APPRECIATIONS OF DISASTER THREATS

DEFINITION

1. An appreciation, can be a thinking, a discussion or a written process. It is a logical sequence of reasoning, leading to the best solution to an operational, administrative or even personal problem.

NATURE OF AN APPRECIATION

2. Every problem derives from a 'situation'. Its solution involves an examination of the situation and usually requires the selection of a course of action.

3. The appreciation begins with an examination of the situation. The next step is to decide upon the specific results required - the Aim. From this basis it is possible to start a process of reasoning that leads logically to a course of action. In short, an appreciation is a procedure for deciding what has to be done and how to do it.

4. The appreciation is a disciplined thought process designed to examine all relevant factors and produce the best reasoned solution. It can be used to solve both factual and technical problems to which there is often only one answer, and more complex problems, to which there may be no set or single answer. This is the most likely situation when planning Disaster Preparedness.

PURPOSES OF A WRITTEN APPRECIATION

5. There are 2 occasions when an appreciation will be more effective if written. These are:

   a. To clear the author's own mind and to ensure that no relevant factors have been overlooked and that the recommended course of action is the best in the circumstances.

   b. To present a clear picture of the situation to higher authority, with the recommended course fully supported by valid and logical reasoning.

6. A written appreciation provides a record of the reasons for adopting a particular Disaster Preparedness plan.

ESSENTIAL INGREDIENTS OF AN APPRECIATION

7. The essence of an appreciation is a sequence of clear thought, critical examination and logical reasoning. The task must be approached with an open, unprejudiced mind. This is more difficult than it sounds when the problem seems familiar or the solution appears obvious. Prejudgement can cause logic to be ignored in a search for arguments that fit the solution already chosen. This hazard claims victims regularly.

8. The need for accuracy, brevity, clarity, logic and relevance in the written appreciation, is as important as in any other form of planning. An appreciation written in an emergency or under trying operational conditions would be at best a shortened version (see Paragraphs 55 and 56) and probably in note form. A written appreciation must, however, always be concise and complete, leaving the reader in no doubt of the aim and the reasons for the recommended course of action.

METHOD OF APPRECIATION

9. Break the problem down into its component parts so that each may be examined in detail. There are 5 distinct steps in writing a full formal appreciation:

a. The first 2 steps analyse what must be done by:

(1) Studying the existing situation.

(2) Specifying the Aim to be attained.

b. The next 3 steps choose how the aim should be attained by:

(3) Examining and reasoning out all relevant factors.

(4) Considering all practicable courses.

(5) Deciding on the best course of action to attain the aim.

10. This methodical sequence prevents the writer from leaping ahead of himself and arriving at a solution without considering all the factors logically.

THE FORM OF THE APPRECIATION

11. The process of arguing the problem through the 5 distinct steps of making a formal appreciation in the correct sequence, is assisted by the use of a standard framework of 9 mandatory main headings allocated as follows:

a. Review of Situation.

b. Factors Affecting Selection of Aim.

c. Aim.

d. Factors.

i. Possible Disaster Events.

ii. Other Factors.

iii. Most Probable Disaster Event(s).

e. Selection of the most Feasible and Practical Option

f. Outline Plan.

For a shortened version of this procedure see Paragraphs 55 and 56.

12. An example of the framework of an appreciation with explanatory notes is at Annex A to this paper.

CONTENT

13. One point must be borne in mind by the reader throughout this guide. The layout of the full Appreciation may appear very formal and the contents of each section may seem to be laid down very rigidly. This is inevitable because the Appreciation is deliberately designed for use in the most complicated situation where the mind must be directed along a continuous, comprehensive and logical channel if the best solution is to be reached. In any situation it is a good layout to follow. In more simple problems it can be abridged. In each case the layout must be adjusted to meet the writer's needs.

REVIEW OF THE SITUATION

14. The Review is the introduction to an Appreciation ; it gives the essential background facts of the situation but is not part of the argument. It serves 3 purposes:

a. It ensures that the reader is given an accurate picture of the situation.

b. It shows that the writer is fully informed.

c. It provides a record of the situation at the time the Appreciation was written.

15. The writer must keep in mind the purpose of the Appreciation and for whom he is writing. Usually the Review need cover only the basic facts that have made the Appreciation necessary. The writer must, however, refer to any direction from higher authority which has an important bearing on the Appreciation. Any assumptions must also be included. Reference to a marked chart, map or plan attached as an annex, often reduces the amount of detail needed in the Review.

FACTORS AFFECTING THE SELECTION OF THE AIM

16. If the aim has been laid down, or is so self-evident as to require no argument, the section on factors affecting the selection of the aim may be omitted. However, when a responsible officer has such a liberty of action that he may be in some doubt as to what his aims should be, he may find it necessary to argue out the factors to enable him to decide. In this case the facts are put down in logical order and deductions drawn indicating the aim. The logical approach might be for example, to set down the responsibilities of the Government or NGO; to follow this by a statement of the probable threats, to deduce from the factors a set of possible aims and finally to draw a conclusion which leads naturally to the selected aim.

17. There are 5 easy tests to apply to an aim, although they may not all be capable of application when the selection is first made. These are:

a. Will my aim secure a definite result in favour of the population and the economy?

b. Does the wording express exactly what I want to bring about, without giving any indication of how to attain it?

c. Is it in accordance with my instructions and responsibilities?

d. Has it a reasonable chance of success in the situation?

e. Is it the best that I can do?

18. When these tests are applied to an aim, the principles of Disaster Management should be borne in mind, eg when considering paragraph 17a external assistance should be remembered. Paragraphs 17d and 17e must be kept particularly in mind throughout the appreciation. It may be that as an argument develops it will become clear that the selected aim must be changed, in which case the Appreciation must be rewritten.

AIM

19. The Aim is the crux of the Appreciation. Unless the Aim is right the whole Appreciation may be worthless. The Aim must be positive, clear and concise. Several things may need to be done at the same time, but there must never be more than one Aim. (Remember the example 'To ensure rescue and restoration of essential life support systems (water, medical aid, food, shelter) and the associated communication and transportation systems')

20. The Aim must be kept in mind throughout the writing of every subsequent paragraph of the Appreciation, and all reasoning must be related to its attainment. The Aim should not be qualified by limitations except those imposed by a superior office of Government or your organization.

21. The aim of an appreciation is expressed in the infinitive beginning with the word 'to'. The verb used must be carefully chosen because it is the keystone. Weak verbs such as 'mitigate', 'reduce', 'delay' should be avoided whenever possible because they lack vigour. Other words to avoid in the aim are 'if', 'by' (except as a time limit as in Paragraph 20) and 'so as to'.

FACTORS

22. The section on Factors is the beginning of the main argument. It consists of facts, opinions or reasonable assumptions and conclusions deduced from these. All the available relevant information must be weighed critically, not only in relation to normal conditions but also in relation to the post-disaster situation.

23. It is important that a comprehensive survey is made of all the relevant factors affecting the Disaster Preparedness plan. But it is also important that only those which have a clear effect upon the result are included in the Appreciation. Consideration of irrelevant factors in the Appreciation only muddles the paper. Typical factors that may have to be considered in a Disaster Preparedness appreciation should include the following.

a. Range of possible threats

b. Affects of the various threats upon people, their livelihoods and the infrastructure (Vulnerability Analysis)

c. Frequency of Occurance (Risk Analysis)

d. Prevention possibilities, short term and long term

e. Prevention and preparedness possibilities (for people, economy, infrastructure)

f. Information systems, warnin responsibilities, availabilities and possibilities

g. Areas of responsibility (including self help)

h. Rescue and emergency life support systems

j. Capabilities and deficiencies within the community and its supporting services

k. Communications (roads, railways, radio, telephone etc)

l. Emergency repair services (engineering, telephone etc)

m. Transportation

n. Social, cultural and political attitudes and constraints

o. Finance.

24. In the Disaster Preparedness Appreciation, people, their needs, the environment and the infrastructure provide the focus of consideration of relevant factors. These relate principally to the maintenance of Life Support Systems (medical aid, drinking water, food, shelter).

25. The above factors are not necessarily applicable to every appreciation. Circumstances will alter the significance of some and introduce others.

26. Each factor must be discussed in relation to the Aim and should lead logically to one or more deductions bearing on the attainment of the Aim. A good test of a deduction is to ask 'so what?'. If the answer is 'so nothing', the factor should be discarded.

27. Each factor must be examined exhaustively and impartially. It is not enough to draw one deduction and assume that the factor has then been dealt with adequately. The deduction itself must be examined to see if it will in turn yield a further deduction and so on. Failure to do this may result in false deductions. The 'so what?' test should again be applied after each deduction. If the answer is 'therefore...', and it affects the attainment of the Aim, then a further deduction should be drawn. If the answer is negative, that particular line of argument is exhausted.

28. Ideally, the various factors should be arranged in a logical order starting with the most important or overriding factors so that the discussion of one factor leads naturally to the discussion of the next. There will be situations where it will be difficult at first sight to establish the priority of factors, but good planning will help to solve the problem. The smooth flow of argument must not be obscured by a mass of detail, eg medical supplies, performance figures. Such detail should be placed in annexes which must be referred to in the body of the Appreciation. The deductions must, however, appear in the body of the Appreciation. In a complicated study, it may be necessary to place both factors and deductions in an annex. If so, a summary of them should be included in the body of the paper to maintain the flow of the argument.

29. There is a danger in this section that, if too much weight is given to a particular factor, a conclusion about a course of action is arrived at before the rest of the factors have been considered. This risk applies particularly to the Affect and Frequency factors (para 23 b and c). Subsequent factors are unbalanced by such an initial mistake, but the danger can be avoided by dealing with each factor separately and impartially.

30. When drafting this section the writer should differentiate clearly between factors and deductions by use of the heading 'Deduction'. If several deductions are drawn from one factor, it may be better to summarize them under a heading 'Conclusion' since this takes the thought process one step further.

Disaster Threats

31. It is logical that the disaster threat must be considered before our own course of Preparedness. All probable disaster events must be considered because they may effect the selection of a course of action.

32. Nature and human failures always have the initiative to surprise and do the unexpected. Disaster events and effects should therefore be considered before deciding upon our possible preparedness courses. Even if we believe our warning systems and safeguards are first class it is at least prudent to do so. The Chernobyl disaster, Bhopal and Flixborough are all cases in point.

33. When considering disaster events and their effects, the deductions from them must be related only to the attainment of our Aim.

34. Disaster events and their results should be considered against an assessment made by scientists, technicians or engineers of their probable affects and consequences. The deductions from consideration of disaster events and consequences should therefore include the following 2 aspects of each:

a. The probability of the event occurring

b. The effect of the event on our ability to achieve and maintain our Aim

35. It is advisable not to express the first deduction (on probability) too categorically. It may not be possible to give a logical opinion at all. Consideration of this point may well however, lead to a decision later as to which or how many of the disaster events if any, is the most probable.

36. The second deduction (on Affects), is similar to those already drawn in factors affecting the attainment of the Aim and will have some bearing on our own courses.

37. These 2 aspects should be set out separately under each option open to us. This process helps to make the subsequent argument clearer and more logical. If, however it is found difficult to classify deductions under the headings 'probability' and 'affect', it is permissible to list them as 'comments'.

38. Do not, at this stage, attempt to decide which of the disaster events is the most probable.

39. Three useful maxims should be followed when writing this section:

a. Keep the disaster threats as broad as possible. Too much detail usually leads to an unnecessarily large number of possibilities which confuse and sometimes mislead.

b. Do not consider all possible disaster occurences. It is tempting to do so, but it may be dangerous to try to forecast the disaster threat over too wide a spectrum. (It is usually a waste of time when there is an immediate problem to solve).

c. The threat should be expressed briefly, clearly and without qualification.

Most Probable Disaster Threat

40. The procedure, where there IS a most probable disaster event, is to sum up all the possible threats or events dealt within the previous section and to say, if possible, which is the most dangerous or immediate threat. Statements made here must be supported by previous argument; the deductions already made as to the likelihood of each possible event will help. The summary should lead logically to a conclusion, - the disaster event which threatens to occur.

41. In some circumstances it may not be possible to decide on the most probable event, either because there is a wide choice or because the selection of a particular threat would influence our own action unduly. In such a case the arguments against selecting a most probable threat must be stated and the event which is most dangerous, or which constitutes the most immediate threat, should be considered instead.

42. It is incorrect to think of disaster events and our own possible prevention and preparedness options as being allied sections simply because they both deal with possibilities and are laid out in a similar way. Disaster Threats are factors. Our own Disaster Prevention and Preparedness are Courses of Action open to us.

PREVENTION AND PREPAREDNESS OPTIONS

43. In examining our possible prevention and preparedness option, full use should be made of all relevant deductions drawn from earlier study of factors, including disaster threats. In particular, the value of deductions on the effect of each threat upon the attainment of the Aim, will now become apparent.

44. It is important not to consider our options only in relation to the conclusion reached on the most probable disaster event.

45. A brief general statement at the beginning of this section may be useful to clear the air and to avoid complicated courses. There are 3 types of Course which should be considered. The first of these is essential, whilst the others are optional. They are:

a. Main Courses. All possible options for prevention, preparedness and action that will achieve the Aim, and which are within our capability, must be considered. Those options that cannot attain or contribute to the attainment of the Aim should not be discussed. Occasionally, however, it may be desirable to dispose of a superficially attractive but unprofitable course of action of this nature, in the opening statement.

b. Combination Courses. A detailed examination of separate options may show that a combination of 2 or more of these is likely to attain the Aim. The 'combination course' must then be included after the others as an entirely separate course and examined separately on its merits in the same way as all previous courses.

c. Complementary Courses. Options which are not in themselves capable of attaining the Aim, but which contribute to it, should be dealt with after the main courses and combination courses, under a group heading 'complementary courses'. For example, a possible complementary course might be "Development of Alternative Cropping Patterns" or "Education Programmes in Hygiene and Sanitation" which may contribute to the Aim by improving self help capabilities.

46. Each option should be examined separately on its own merits. No attempt should be made to weight the merits of one against another. This comes in the next section. Each option should be stated clearly, positively and concisely in the form 'Option I. To....., Option II. To.....'. Complicated courses and courses that are similar to one another should be avoided. In general, a large number of simple courses is better than a smaller number of complicated ones. Each should be followed by a concise statement of its advantages and disadvantages. This is best done by the use of the headings 'Advantages' and 'Disadvantages'. If it proves difficult in a particular appreciation to classify statements under these headings, it is permissible to list them as 'Comments'.

SELECTION OF THE BEST OPTION AND COURSE OF ACTION

47. This section is the culmination of the whole argument. In the previous section the advantages and disadvantages of each course were stated separately, but each course was not weighed against the others. Now is the time to do this, and if the previous section has been fully and clearly argued it should not be difficult to make this comparison briefly. Some repetition may be unavoidable, but it should be kept to a minimum.

48. The more concise and direct the argument, the more convincing it will be. The comparison between options should be developed logically so that the selection of the best course becomes the natural conclusion. This section must finish with a definite recommendation of the option to adopt. It is inadmissable to introduce new ideas at this stage. If a new idea does occur, the writer must stop and go back and write it into the appropriate section. He must then check all argument subsequent to the amendment to make sure that the new factor or deduction does not alter the reasoning of the paper.

OUTLINE PLAN

49. The argument is now complete and a Preparedness Plan and Course of Action has been decided upon. This final section, the proposed plan, therefore makes no contribution to the actual solution of the problem but is added because it serves 2 special purposes:

a. By indicating the measures to be employed it enables the reader to check that the Course of Action selected is feasible, practicable and within the means available.

b. If the Appreciation is accepted by higher authority without serious modification, it serves as a basis for the production of the necessary instructions or further detailed Preparedness Planning without delay.

50. The plan should avoid too much detail but should give enough general directions to enable the order required to put the plan into effect to be drafted, if necessary by another person. Normally it need be only an outline plan.

51. The plan must be a clear, definite and practical proposal for action and the employment of available resources. It should be written concisely and forcefully. It must convey the writer's full intentions to the reader, as briefly as possible. It should, be illustrated by diagrams, plans, maps, overlays, etc.

52. The plan must follow the proposed course of action and should not include anything that is not based on, or that does not follow logically from, material discussed in the previous sections. Even at this late stage, if there is a new thought the writer must go back, put it in the right place and check the subsequent argument, amending it as necessary. The proposed plan should follow a logical, generally chronological sequence. The following aspects are usually included:

a. Responsibilities allocated to the various individuals, departments and organizations involved.

b. Manpower and technologies available.

c. Outline of systems and operations.

d. A broad indication of technical, manpower and administrative arrangements.

e. Transport

f. Communications.

g. Arrangements for mutual assistance between communities.

h. External aid and assistance requirements.

REAPPRECIATION

53. Sometimes it is difficult to decide just how far to look ahead. It is usually a matter of judging when some new technology is likely to be available, or when the situation will have otherwise changed sufficiently to make a new appreciation necessary. The last paragraph of the appreciation should state when the situation should be reappreciated in the form:

'Reappreciate at.....(time and date)', or
'Reappreciate when.....(a certain event has occured)'

REVISION

54. After completing the Appreciation, it should be revised and checked to ensure that it will stand up to the following tests:

a. Is the reasoning valid?

b. Is the sequence logical?

c. Is everything in it relevant to the Aim, and has anything been forgotten?

d. Is it free from vagueness, ambiguity and prejudice?

e. Is it accurate? Are positions, times and distances, etc, correct?

f. Will the plan achieve the Aim?

SHORTENED VERISON

55. Anyone well acquainted with the pattern of the full formal Appreciation can evolve a shortened version for the more urgent or less complex problem. The detail incorporated depends upon the occasion and the level. The process, particularly in the field, may take place in the head or on the back of an envelope, but the principle of a logical approach to the problem remains the same.

56. The short version would probably include only the following headings:

a. Aim.

b. Factors.

c. Practical options possible.

d. Plan.

CONCLUSION

57. The Appreciation affords good practice in logical thought and sound reasoning. Whether written or not, it must never be allowed to become a theoretical process which will not stand up to realities. It should be a flexible means for the orderly and practical consideration of the factors affecting the solution of any problem. A firm grasp of the principles of 'appreciating the situation' and the ability to apply them to Disaster Preparedness planning are of first importance.

Annexes:

A. Framework of an Appreciation.

ANNEX A
APPRECIATIONS

FRAMEWORK OF AN APPRECIATION

SECURITY CLASSIFICATION

Identifying Reference Copy No of copies

Date

AN APPRECIATION ON _____

For: . . . . . Department/Branch . . . . .

By: . . . . .

At: . . . . . On: . . . (Day, Month, and Year)

References:

A. . . . (Maps or drawings: Series, sheet no, edition and scale)

B. . . . . .

REVIEW OF THE SITUATION

1, 2, etc.

FACTORS AFFECTING THE SELCTION OF THE AIM

4, 5, etc.

AIM

7. To . . . . . .

FACTORS

AREA/COMMUNITIES TO BE PROTECTED

8, 9, etc.

11. Deductions

DISASTER THREATS/DISASTER PREPAREDNESS, ETC

12, 13, etc.

15. Deductions.

16. Conclusions.

COMPARISON OF CAPABILITIES/TECHNOLOGIES AVAILABLE

17, etc.

19. Deductions.

SECURITY CLASSIFICATION

FRAMEWORK OF AN APPRECIATION (continued)

DISASTER/ACCIDENT PROBABILITIES

20. Event A. . . . . .

a. Likelihood.
b. Effect.

21. Event B. . . . . .

a. Likelihood.
b. Effect.

Etc.

MOST PROBABLE DISASTER EVENT

23.

PREVENTION/PREPAREDNESS OPTIONS

24. Option I. To . . . . . .

a. Advantages.
b. Disadvantages

25. Option II. To . . . . . .

a. Advantages.
b. Disadvantages.

SELECTION OF THE BEST OPTION

26

27. It is therefore proposed to adopt Option.

PLAN

28 etc.

(Signature)
(Name)
(Appointment)

Annexes:

A. . . . . .
B. . . . . .

Distribution: Copy No.:

. . . . . .

SECURITY CLASSIFICATION

AWARENESS AND PREPAREDNESS FOR EMERGENCIES AT LOCAL LEVEL: A PROCESS FOR HANDLING TECHNOLOGICAL ACCIDENTS (APELL)

One of the seven issues agreed in a 1967 Symposium in the USA by three philosophers, two historians, one journalist and one senator was that reliance upon local administration of public affairs was preferable to reliance upon a big Government.

Reliance on local administration of disaster management has been the main plank of NEMA right from its inception in 1989. Twelve (12) local authority plans covering the whole country have been finalized by the local authorities themselves and given wide publicity.

Outbreak of war in the Gulf and subsequent man-made disasters around the world have now brought out the necessity of enlarging these local plans so that a co-ordinated response can be made to man-made technological disasters. Basically NEMA regards consequences of man-made disasters as similar to consequences of other types of large-scale catastrophic events of extraordinary situations. The same needs may exist - medical care, food, shelter, evacuation, and so forth, and the same responses and capabilities are called for - co-ordination, emergency operating centres, communications and emergency response capability.

That is why NEMA is now asking the industries to get involved in APELL, that is, Awareness and Preparedness for Emergencies at Local Level which is designed to assist decision-makers and technical personnel in improving community awareness of hazardous installations, and in preparing response plans should unexpected events at these installations endanger life, property or the enivornment.

The APELL Process advocates a co-operative approach to technological accidents. APELL has also been prepared by UNEP/IEO in a co-operative way with the Chemical Manufacturers' Association (CMA) in USA and Europe. It has involved other international organizations and non-governmental associations.

THE APELL PROCESS

Why APELL?

Recent events raise the issue of safety and emergency preparedness for all people in all nations of the world.

Everybody still has in mind the dioxin-containing release in Seveso in 1976, the propane explosion in Mexico City in 1984, the release of Methyl Isocyanate at Bhopal in 1984, the fire and discharge of contaminated waters in the Rhine in 1986 from a warehouse in Basel, mining explosion caused by methane gas in Yugoslavia in August 1990. Nor is to be forgotten the case of the ship that should never have sailed last year. No, I am not referring to M.V. Panorama but to the Danish ship in which a fire killed 158 people in April 1990, And the massive oil spill as a part of the ongoing Gulf War.

It is now universally acknowledged that every disaster, whatever the cause, has an environmental impact.

Whilst most industrial accidents can be contained within the boundaries of the industrial plant, there are those cases where impacts extend beyond its boundaries to affect the plant neighbourhood and have adverse short or long term consequences affecting life, life-support systems, property, or the social fabric. The extent of loss caused by such accidents depends to a large extent on the actions of the first responders to an emergency, within the industrial facility and the local community around it.

Clearly, adequate response to such situations calls for well co-ordinated actions of individuals and instructions from the local community. This can only be achieved if there is awareness in the community of the possible hazards and of the need for mutual preparedness to cope with their consequences.

The APELL is a process for such a co-operative action to improve community awareness and emergency preparedness.

APELL consists of two parts:

- Provision of information to the community of the possible hazards involved in the manufacture, handling and use of hazardous materials, and of the steps taken by authorities and industry to protect the community from them. It is information like this which makes Sgt. Toland of US Army in Saudi Arabia say about impending Iraqi chemical attack "The more you know about a nightmare the less you worry about it".

- Formulation of a plan to protect the public, which will be called "Emergency Response". As a Latin Proverb says, "It is better to be always upon your guard than to suffer once".

APELL addresses all emergencies related to any industrial or commercial operation with potential for fire, explosion, spills or releases of hazardous materials. How to determine which industrial and commercial operations should be concerned by the APELL Process is in principle the result of a risk assessment. In most cases, however, simple judgement and common sense may identify the facilities which may present a potential for a major accident.

Since the containment of health and environmental impacts depends upon the speed and scope of the initial local response, the emphasis is thus directed at local level participation. The APELL recognizes, however, the funcamental roles of the national government, ministries, and the chief executive officers of industries to support and assist these efforts at the local level.

"Government has no other end but the preservation of property", said John Locke, the 17th Century English philosopher. APELL's goals are slightly wider; they are: to prevent loss of life or damage to health and social well-being, avoid property damage, and ensure environmental safety in the local community. Its specific objectives are:

- Provide information to the concerned members of the community on the hazards involved in industrial operations in its neighbourhood, and the measures taken to reduce these risks
- Review, update, or establish emergency response plans in the local area
- Increase local industry involvement in community awareness and emergency response planning
- Integrate industry emergency plans with local emergency response plans for the community to handle all types of emergencies
- Involve members of the local community in the development, testing and implementation of the overall emergency response plan.

At the local level there are three very important partners who must be involved if APELL is to succeed. And this partnership is like the rope with which climbers in the high mountains bind themselves for safety, and only a coward cuts the rope when a comrade is in danger.

- First partner is Local authorities: these may include county or city officials, either elected or appointed, who are responsible for safety, public health and environmental protection in their area
- Second partner is 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 preparedness measures within the plant and establish review of the industrial plant's operation. But their responsibilities do not stop at the fence. As leaders of industrial growth and development, they are in the best position to interact with local authorities and leaders, to provide awareness on how the industrial facility operates, and on 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 work force is also important.

> Third partner is Local community and interest groups, such as environmental, health, lay care, media, and religious organizations, and leaders in the educational and business sectors that represent the concerns and views of their constituents in the community.

At the national level, NEMA plays the role of providing the co-operative climate and support under which local participants can achieve better preparedness. Through co-ordination and endorsement, NEMA fosters participation of everyone at the local level. Industry associations should also get involved.

There are other partners: the APELL Process is designed so as to harmonize with other initiatives and efforts in reducing risk and hazards as well as their consequences.

STARTING THE APELL PROCESS

How will APELL work?

"Don't play for safety. It's the most dangerous thing in the world", said Hugh Walpole. All industrial facilities have a responsibility to establish and implement a "facility emergency response plan". A key foundation for such a plan is a safety review of facility operations. This safety review, which is central to a company safety plan, examines in detail those items that affect safe operation of the facility. One part of this in-depth review by the facility management is the preparation of an emergency response plan.

A national emergency plan is already in place. The APELL Process is designed to build, using all emergency plans that already exist as a basis, a co-ordinated single plan that will operate effectively at the local level where first response efforts are so critical. While national organization and plans exist for emergency response, there is always the need for an effective support structure at the local level.

In order for local authorities and local leaders to play their most effective roles with respect to awareness and preparedness for emergencies, there must be close and direct interaction with representatives of those industrial facilities to which the local area plays host. Indeed, local authorities and leaders and industrial representatives need to find the means to build a bridge between local government responsibilities and industry responsibilities.

This bridge is the Co-ordinating Group which must be able to command the respect of their various constituencies, e.g. industry, local group, etc., and be willing to act co-operatively in the interest of local well-being, safety and property. The Leader of the Co-ordinating Group ideally should be able to ensure motivation and co-operation of all segments of local society regardless of cultural, educational, economic and other dissimilarities among these segments. This attribute of the Leader of the Co-ordinating Group needs to be kept firmly in mind when selecting individuals to act in the role of Leader.

In sum, the Co-ordinating Group's role arises since industry is primarily responsible for protective actions "inside the fence" while local government is responsible for the safety of the general public.

How to form the Co-ordinating Group

"The way to get along is to go along", said John Kennedy on co-ordination. The key organizational step to make the APELL Process work is the formation of a Co-ordinating Group representing the various constituencies that have or should have a voice in the establishment of an emergency response plan. The group should include members from local authorities, local community leaders and industry. It is important to bear in mind that all affected parties have a legitimate interest in the choices among planning alternatives.

In particular, plant managers of industrial facilities in the local area need to be active participants in the Co-ordinating Group, In turn, local authorities and community leaders need to know that these plant managers are acting with the blessing and authority of the highest officers of their respective organizations, in order to ensure the success of the APELL Process.

The APELL Process may be initiated by any member of the three involved groups: local authorities, local community leaders, or industry managers.

BUILDING COMMUNITY AWARENESS

The need for the local community to know about hazardous installations

Citizens in local communities have expressed concern that potentially hazardous materials which could affect their health and environmental safety may be produced or used in their community. These citizens want to know if these materials are present; their concern is often termed the "Right-to-know". This sharing of information will have advantages to both the parties - as William Danforth said, "When someone shares his fears with you, share your courage with him".

In addition they need to be informed about potential hazards of hazardous installations in order to understand why an emergency plan has been established, how it works and what actions they are expected to take in case of an emergency.

What and how to communicate?

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, that it has a good safety plan and 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 industrial facility or complex at every location. However, industry managers, local authorities or community leaders should consider the following points:

- define the local community concerned
- inventory existing local community contacts
- contact other industrial facilities to co-ordinate community activities
- plan an initial meeting of the Co-ordinating Group
- develop fact sheets or kits on each industrial operation
- develop fact sheets on community preparedness
- assign responsibility for communication tasks
- look for communication opportunities
- select methods of communications appropriate for local circumstances
- get outside help
- inform employees and personnel.

ACHIEVING PREPAREDNESS FOR EMERGENCIES

Issues to be addressed

"Better to be despised for too anxious apprehensions than ruined by too confident security", said Thomas Burke. Among the first steps in the planning process are the gathering of information and assessment of the current situation. Therefore one of the first tasks facing the Co-ordinating Group is the collection of basic data. This can be done through personal contacts by Co-ordinating Group members or by surveys sent to local industry and government offices to:

1. identify local agencies making up the community's potential local awareness and response preparedness network
2. identify the hazards that may produce an emergency situation
3. establish the current status of community planning and co-ordination for hazardous materials emergency preparedness and assuring that potential overlaps in planning are avoided
4. identify the specific community points of contact and their responsibilities in an emergency
5. list the kinds of equipment and materials which are available at the local level to respond to emergencies
6. identify organizational structure for handling emergencies
7. check if the community has specialized emergency response teams to respond to hazardous materials releases
8. define the community emergency transportation network
9. establish the community procedures for protecting citizens during emergencies
10. set up a mechanism that enables responders to exchange information or ideas during an emergency with other entities.

A ten-step approach to the APELL Process for planning for emergency preparedness

Based on experience, a ten-step approach to implement the APELL Process can be set forth which leads to a useful and effective integrated community emergency response plan. Significant effort will be required to complete each step. Listed below are the ten steps which are also presented in a flow chart.

- identify the emergency response participants and establish their roles, resources and concerns
- evaluate the risks and hazards that may result in emergency situations in the community
- have participants review their own emergency plan for adequacy relative to a co-ordinated response
- identify the required response tasks not covered by existing plans
- match these tasks to the resources available from the identified participants
- make the changes necessary to improve existing plans, integrate them into an overall community plan and gain agreement
- commit the integrated community plan to writing and obtain approvals from local governments
- educate participating groups about the integrated plan and ensure that all emergency responders are trained
- establish procedures for periodic testing, review and updating of the plan
- educate the general community about the integrated plan.

The chaos that started with leaking gas at Union Carbide in Bhopal has not yet ended. People are still dying from its effect at the rate of 50 a month. About 300,000 people were affected as the gas settled on a sleeping town, sparing only those who lived on high ground. Bhopal has now 70 per cent more cases of eye disease than anywhere else; more and more cases of brain tumors and tuberculosis are being reported. Abortions are on the increase.

The Scottish scientist J.B.S. Haldance once said that the people who can make a positive contribution to human progress are few, that most of us have to be satisfied with merely staving off the inroads of chaos. That is a hard enough job - especially in these times, when those inroads are more threatening than they have been for a long time past. But if we can stave off the ever threatening industrial disasters we would have done our bit for our country.