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DISASTER EDUCATION: ITS SUBSTANTIVE
CONTENT AND THE TARGET AUDIENCES

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Introduction

Major disasters have occurred almost everywhere in the world since the human race has appeared on this planet. Disastrous agents have killed and injured millions. They have inflicted huge destruction and damage on goods, buildings and land. They have seriously disrupted economic and social systems of whole societies.

Just single catastrophes have produced very high death tolls. As long ago as 526 A.D. an earthquake in what is now Syria reportedly killed 250,000. Possibly 25 million died when the bubonic plague pandemic—the Black Death—swept Europe in the 1340s. A Yellow River flood in China in 1887 left perhaps a million and a half dead.

The picture remains equally bad in more modern times. The Tokyo-Yokahama, Japan earthquake of 1923 resulted in about 143,000 fatalities. Several hundred thousand were killed and 13 million were left homeless in the 1970 cyclone in what is now Bangladesh. How many have died is disputed, but recent famines in Africa have left hundreds of thousands, perhaps millions dead. The list could go on and on.

Even if we exclude the consequences of wars, revolutions, civil strife and other human acts deliberately intended to kill others and destroy property, the non-intended calamities alone have taken a tremendous cumulative toll. In but the last two decades, sudden type natural disasters have claimed more than 2.8 million lives and have affected 820 million people. Tropical cyclones and hurricanes every year alone produce annual direct economic losses of six-seven billion dollars (Confronting Natural Disasters, p.1). The human race clearly has suffered much from disasters.

But that is the past. We need to think about future disasters. Will the situation improve? It could, but it may not. What will happen is partly in our hands. We who are involved in the disaster area can help make the difference.

The Need For Education

H. G. Wells, the British historian and novelist once wrote: "Human history becomes more and more a race between education and catastrophe." (Outline of History, chapter 15). Almost certainly he had in mind a rather broad conception of education and of catastrophe. Nonetheless, his thesis encompasses a point I also want to make. If we will not educate those who can use the relevant knowledge that is available, it will become increasingly more difficult to prevent, to prepare for, to respond to, and to recover from the disasters of the future. There is a link between education about disasters and their manifestations.
The existing knowledge base.

Now, a few decades ago it would have been valid to argue that our knowledge base about disasters was so limited that little education could be provided about them. This is no longer true. We currently know much about disaster phenomena.

In particular, in the last 30 years, there have been many studies about the human and social aspects of disasters. The knowledge derived from such work is really more important for educational purposes than is the technical information obtained from the physical or engineering sciences. For example, how to convince communities not to build in flood plains; how to establish warning systems about chemical hazards that will have legitimacy among citizens; how to manage the complex interorganizational coordination required after major earthquakes; or how societies can best recover from the economic losses of nuclear radiation fallouts—these are not questions primarily answerable from technical information. They are issues which can best be addressed by knowledge obtained from the social and behavioral sciences.

Not only is there an ever expanding knowledge base usable for educational purposes, but it is increasingly being drawn from the study of disasters in different societies. The initial social research was first undertaken in Canada and the United States in the middle 1950s and in the early 1960s in Japan and in France. Since then systematic studies have been launched in the more urbanized and industrialized societies ranging from Italy to Australia, and from Sweden to the Soviet Union. Although their effort has lagged behind, we are now starting to see the initiation of social science research in the so called less developed countries ranging from India to Mexico and from Taiwan to Columbia. The importance of the spread of the research activity is that the observations and findings are being derived from studies done in the full range of countries around the world and on the complete spectrum of all acute natural and technological disasters. The research results at an accelerating rate, come from all kinds of disasters in all kinds of social systems.

The application of the knowledge.

No one would claim that what is known is complete. Or even that all important questions have been asked. But in my view we have a substantial body of established knowledge that could be used. The problem is that far less is applied than is known. As Thomas H. Huxley, the English biologist, once wrote: "The great end of life is not knowledge but action" (Technical Education). Unapplied knowledge is useless knowledge. We need to take what we now understand about disaster phenomena and apply it to better prevent, prepare for, manage, and recover from disasters. While we must not stop obtaining more new basic knowledge, it is time for action.
This of course is part of the theme of the proposed International Decade of Disaster Reduction. Its basic thrust, to quote from a US National Academy of Sciences document: "it is that much that is already known is not universally applied" (p. ix) and that "it is reasonable to expect that a strong program can markedly reduce injuries, deaths, and property damage due to natural hazards" (Confronting Natural Disasters, p. xi). This guiding notion for the Decade is in the right direction. But in this meeting at least we should think of educating about technological as well as natural disasters since the research literature suggests that it is not very useful to distinguish between the two. Insofar as human and social aspects are concerned, both types of disasters have far more elements in common than they differ. Let us not draw an unnecessary distinction. At any rate, our view is that existing social scientific knowledge if applied could make a substantial difference in how the world copes with all disasters, not just natural ones.

What we need—the knowledge—is available. What we should do—apply that knowledge through educational activities—can be done. In fact, this would be relatively less costly than most other counter-disaster measures which could be attempted. Vast amounts of money are always required, for example, to prevent disasters by structural means such as constructing huge dams or seawalls, retrofitting or disaster proofing buildings, changing climatic conditions, etc. These are highly desirable activities in many cases. But they are very expensive. Educational activities cost less, at least as far as money is concerned (although not necessarily in terms of time and effort). Put another way, what we can do and what we should do, is also probably the most economically cost effective. For what we put into education, we can get the greatest relative payoff.

While I do not think economic criteria should solely govern actions, they can not be ignored. In general, the worst off countries in the world are most vulnerable to disasters. But even the best off societies can not squander resources on low probability events—which calamities are. To use the educational route as one major way of coping with disasters therefore is a good way of proceeding for all nations.

The Public As A Target Audience

However, the focus on education can be misdirected. Too often I regret to say those involved with disaster problems, when they think of educating about disasters, think solely of citizens in general or the public. There are several serious flaws in this point of view.

We will only note in passing that some of this thinking is also tinged with elitism. It sometimes has the arrogant tone that there are many ignorant peasants and workers out there who need to be
educated about disasters. The envisioned model is that the uneducated masses need to be enlightened by the experts. It should go without saying that such an attitude is subversive of a good teaching situation. An effective teacher does not pass down dogmatic wisdom from the top. Instead one builds on the relevant experiences of the learners. Good education requires having respect for the intelligence of those who have to be taught.

More important, the public is not an homogeneous entity in any society. When we are talking of the citizenery in general we obscure or mask many important differences. A variety of distinctive lifestyles will be followed in any country. Social classes exist in all societies, although their overt manifestations may be sharper in some than others. Separate ethnic, racial, and even religious groupings characterize many social systems. Any educational effort which does not take into account such kinds of heterogeneity will not succeed. The public is made up of a multitude of subworlds organized along some of the social differences indicated. The beliefs and perceptions that people will have about disasters, what will motivate them to prepared for and how they will respond to disasters, what organizations are accorded legitimacy and trust in cases of crises, etc., will and does often vary depending on the subworld involved.

Realistic disaster education requires having a realistic view. The public is not just simply people out there. The public is made up of a melange of often radically distinctive subgroups living in rather different social worlds even though all the groups may be occupying the same physical or geographic political space. Thus, there can not be one general educational disaster program for the public as such. Instead different educational strategies and contents are needed for different subworlds and lifestyles that make up the public.

Other Important Target Audiences

Actually I have a question on whether even the subgroups within the public ought to be given the highest priority for educational attention. In my view, there are other and better candidates for initial knowledge transfer. While the public subgroups should be educated about disasters, there are other social categories or audiences that might be given more and prior attention. Let me mention five somewhat specialized audiences for an educational effort.

The mass media.

First, the mass media. They are very important because the image most of us have about disasters is derived from media depictions. The picture conveyed may be in news stories or popular culture products such as movies and novels. But what we think and believe about disasters is mostly rooted in media accounts. Relatively few
of us ever have more than one direct personal experience of a major disaster in our lifetimes. To the extent that the mass media incorrectly depict disasters, to that extent we have wrong ideas about the phenomena. It follows that if the mass media are educated so they will more correctly portray disasters, the more accurate the images of all of us will be. Thus, educating the mass media about the realities of disasters ought to have the very highest priority.

National decision and policy makers.

A second audience for an educational effort should be the key decision and policy makers at the national level. Now which specific governmental, political and bureaucratic entities and officials are important in the process, will vary from society to society. However, it is in such circles that the national agenda for attention and resource allocation is set. To the extent disasters are not on such agendas, nothing will happen (except ad hoc responses when the events occur).

There is a major reason disasters have such low priority in the thinking of decision and policy makers. It is because such officials typically have almost no real knowledge about the importance of the natural and technological risks and hazards to which their societies are vulnerable. If they were better educated about disasters, the chances for the problem appearing on the national agenda would be raised. Now in most cases the ranking of the problem would probably be still rather low. But at least it would be on the agenda. However, for this to occur, the absence of realistic awareness among national officials has to be turned into some understanding of the nature of the problem of disasters.

Local community officials.

A third audience for education should be the local level officials involved in some way in disaster prevention, preparedness, response and recovery. These range from mayors to engineers, from health inspectors to urban planners. Whatever the overall organizational structure of a society, its most operative lower level organized entity is the community. That is, human beings are most organized to do disaster-relevant things collectively at the community level. It is at that level, for example, that most measures to mitigate disasters are actually undertaken (e.g., the building of a dam or enforcement of regulations on hazardous chemicals). It is at the local community level where the most specific preparedness occurs, where the most concrete emergency time responses happen, and where most recovery from disaster activities are carried out (e.g., rebuilding homes or compensating victims of radiation fallout.) Clearly if local officials in their implementations do not do the right things, the coping and adjustment to disasters will fall short of what is desireable. But any implementation can be no better than the knowledge which is
assumed. Thus, local officials must have the appropriate knowledge about disaster phenomena to do their jobs well. Raising the disaster educational level at these key positions in the local community, will improve whatever counter-disaster measures are attempted.

Disaster planners and managers.

An even more obvious choice of an audience for education about disasters are the disaster emergency planners and managers at all levels, but particularly at the community level. It might be thought they would normally have the necessary and appropriate knowledge. Often however this is not the case. Part of this results from the fact that persons who come to occupy these positions often have no prior career or occupational background relevant to working in disaster planning or emergency management. They frequently come from the military. But contrary to widespread beliefs, this is not good experience for coping with civilian disasters. Also, in many cases there is little opportunity for on or in-job training. Not infrequently too, there are no readily available centers for learning how to be a better disaster planner and emergency manager. So there is a great need to give priority to meeting the educational needs of those local officials who of necessity will be involved in disasters when they occur. If their understanding of disaster phenomena is poor--which it often is--the disaster planning or emergency managing is also not going to be good.

Voluntary citizen groups.

Finally, the fifth audience which ought to be considered in any educational effort are the key citizen and voluntary groups likely to be found in any community. Some societies tend to have more local voluntary associations than others. But they exist everywhere. They are important in two respects. Volunteers in a group are more likely to be interested and motivated to working together than members of non-voluntary organizations. Also, such groups tend to have social networks that cut across other community linkages. As such, voluntary groups, if they can be involved in disaster-related activities, can be very effective in spreading relevant information and inducing desirable actions by their members. Trying to reach the residents of a community on an individual person-by-person basis is much more difficult than tapping into already existing voluntary groups with their networks and linkages. In one sense, educating a group is normally easier than trying to educate the same number of isolated individuals. Therefore, it would follow that some priority ought to be given to finding such community groups and designing disaster educational material more appropriate for a group setting. This would be better than attempting mass educational programs or campaigns for individuals which typically are not very successful.
Now to note the existence of subworlds or lifestyles within general publics and possible special audiences does not exhaust who could be on a list of potential targets for educational efforts in the disaster area. However, we may have illustrated enough one of our general points. It is important to recognize that there are different audiences who can not all be approached in the same way, and some of whom should be targeted for educational attention before others. I have indicated who I think they are and what priorities should be assigned. You may have a different list and ranking. But if you had not differentiated before hearing my remarks, perhaps now you will consider the necessity of doing so.

So far in our remarks we have noted the need for disaster education, that there is a knowledge data base which can be used for that education, and that there are different groups or audiences which ought to be the ranked targets for education. Obviously there are some research findings which are of more relevance to certain educational targets than others. But I think there are some principles derived from research which anyone interested in disasters should know.

As an aside but a related point, let me suggest something you might think about as a long run goal. It is this: any well educated person should know about disasters. Accurate knowledge about disasters should be part of the understanding of the world that any well educated person ought to have. This conference might start developing this as a major objective for the future.

The Content of Disaster Education

Now back to what ought to be part of that substantive knowledge. We will first mention some across-the-board fundamental points. We will then discuss some basic ideas that are more specific to each of the four phases or stages of disasters: preparedness planning, emergency response, recovery, and prevention-mitigation (we list this last even though it might be logically treated first since it is far easier to implement relevant ideas in post-rather than pre-disaster times). It should also go without saying that everyone should understand the four phases or stages of disasters and the necessary links between them.

Disasters are different than accidents.

One of the overall points which should be stressed in any educational effort is that disasters and catastrophes are not simply large scale accidents or emergencies. Research has consistently shown that this distinction is not always understood, with unfortunate consequences for the handling of disasters. Disasters are both quantitatively and qualitatively different. In a disaster (and even more so in catastrophes) there is a difference of kind, not just of degree, compared to what goes on in everyday
emergencies. A disaster involves not just more, but something which is qualitatively different. Let us note five crucial differences between disasters and accidents.

Ways in which disasters differ.

At the height of a disaster the following can be noted: (1) responding organizations have to relate to far more and different kinds of groups than they have to on an everyday basis. This convergence of organizations is simply part of the massive inflow of people, communications, goods, etc. that is distinctive of disaster situations but not of everyday emergencies. A disaster generates a "mass assault" from within and outside the local community upon the problem. Accidents do not.

(2) Both groups and individuals lose some of their usual independence and autonomy. Community and disaster time needs and values take precedence over everyday relationships (e.g., persons and organizations may be monitored and ordered about by social units that may not even exist in routine times). Everyone and all groups in an impacted area become more directly dependent on others in a disaster, unlike in accident situations.

(3) New norms emerge regarding what is acceptable and non-acceptable at the height of the emergency time. Performance standards for organizations often change (e.g., in hospitals and emergency medical services the speed of response in handling casualties is replaced by a need to more equitably distribute victims in the available medical facilities); expectations of persons can be radically altered (e.g., destruction of property is very allowable to save lives in search and rescue efforts). Emergent new norms are rare in accidents, almost inevitable in disasters.

(4) In a disaster the lines and boundaries that normally separate the public and the private sector (or in societies where all is public--different public sectors) become quite blurred. Thus in a disaster the need for the quick mobilization of resources for overall community emergency purposes often preempt everyday rights and domains (e.g., goods, equipment and facilities are without due process requisitioned for the common good from everywhere and everyone). Legal and group borders are seldom crossed over massively in accidents.

(5) In disasters, the responding individuals and organizations are often themselves in whole and in part directly impacted. Organizations may lose some of their work force, buildings, supplies and resources. Individual survivors may also undergo personal losses and disruption of services. In contrast, in everyday accidents and emergencies almost all people and groups are outsiders coming to the scene whereas in disasters many are insiders and part of the crisis occasion.
These differences are very important not only in preparing for and responding but also in taking steps to prevent or recover from disasters. What should be done during these different disaster stages or phases must make correct assumptions about what will likely develop at the height of a disaster. Unrealistic assumptions can only produce bad results at any point of the process. Thus, everyone should learn if they do not yet know it that disasters are different in crucial ways from everyday emergencies. What might enable a coping with neighborhood accidents, multi-car traffic pile ups, minor disruption of utility services, etc., will not do in disaster situations.

There is of course a link between everyday behavior and disaster-related behavior. In fact, a basic principle from disaster research is that staying as close as possible to the normal—whether this be of individual, organizational, community or societal behavior—is what should be planned and attempted at times of disasters. But the point of course is that in disasters, there is not a normal situation and everyday behavior will not always do. Improvement for everyday emergencies might of course be desireable. But let us not mix up the different objectives involved. If greater understanding about disasters is the goal, we must make certain that the focus is on disasters and not other social phenomena, even if related. We should teach about disasters.

Emphasis on disasters generally rather than specific agents.

A second overall point to stress in any educational effort is somewhat controversial. It is the argument, a valid one in my view, that a generic or overall rather than agent specific approach ought initially be taken to disasters. The majority of disaster researchers in the social and behavioral sciences clearly seem to believe that a generic approach is both more valid and more useful.

Much disaster planning is agent-specific rather than being primarily generic or general. There is a tendency to organize separate planning around specific disaster agents. Thus, one finds in many places around the world that often there is separate planning for chemical disasters, separate planning for nuclear plants, separate planning for flood threats, and so on. Planning is separate, with usually separate organizations for preparing and responding to the separately viewed threats or impacts. (and even more so for preventing them).

This kind of separate agent-specific orientation might seem natural and obvious. Are not chemical threats different from earthquakes? Are not floods different from massive fires in high-risk buildings? The answer, of course, is yes. But yes only up to a certain point.

For very many of the human and organizational problems in preparing for and managing the response to disasters, the specific kind of disaster agent does not matter. For example, the same kind of
warning messages and the same kind of warning system is needed and
effective in getting people to evacuate, irrespective of the
specific disaster agent involved. It does not matter if the agent
is a cyclone, a chemical spill, a tsunami or tidal wave, or
radioactive fallout. What will motivate people to give credence to
warning messages, what kinds of warning messages will be effective,
what will limit the acceptance of a warning and so on, will be the
same in all cases. These human aspects of a disaster do not depend
on the specific type of disaster agent involved.

Similarly, if there is need for organized search and rescue or the
large scale delivery of emergency medical services after a disaster
impact, the more important organizational aspects that have to be
dealt with do not depend on the specific disaster agent involved.
For example, research has consistently shown that the less
seriously injured are likely to be treated first, that there is
strong likelihood that not all the available hospital and medical
facilities will be used. Similarly, studies have concluded that
ordinary citizens in impacted localities will undertake most of the
initial search and rescue, that the handling of dead bodies--
especially if they are dismembered or disfigured--is very
psychologically disturbing and has mental health consequences for
those who engage in such activities. The specific disaster agent
involved does not matter very much.

Disasters do differ from one another. But it is not the difference
between a chemical disaster and an earthquake, for instance, which
is most crucial. In our view, the differences that are important
are not agent specific. Instead they have to do with such features
as cut across different disaster agents. Of importance would be
predictability, controllability, speed of onset, length of possible
forewarning, duration, scope of impact, destructive potential and
so on. Thus, it is important for planning and response if there is
a possible warning time. In such cases it matters much less if the
agent involved is a natural or a technological one. Certain
physically "dissimilar" disaster agents can have similar
consequences. Conversely, certain physically "similar" disaster
agents can have rather dissimilar effects. Given all of this, it
is not surprising that research has consistently shown that
disaster planning and managing should, first of all, primarily be
generic or general.

Of course, within the overall orientation there can and might be
special provisions for particular aspects of certain kinds of
disaster agents. Thus, for example, different procedures and
expertise is needed for decontaminating land polluted by sea water
and that polluted by radiation fallout. Similarly, structural
measures to fireproof buildings are different from those involved
in strengthening them against wind damages. In fact, some counter-
disaster measures for mitigation or prevention often have to be
very agent specific. Overall, however, we should think of
disasters, first and foremost, as general or generic. We should be agent specific only secondarily.

Those who oppose this point of view are ignoring the very many common human and social aspects that cut across all types of disasters. They also miss the advantages of a generic or all hazard approach. These include being: (a) cost-efficient in terms of expenditure of time, effort, money, and resources; (b) a politically better strategy because it mobilizes a wider range of groups interested in disaster preparation and response, thus creating a more powerful constituency for disaster planning; (c) a major way of avoiding duplication, conflict, overlaps, and gaps in actual responses to disasters; and (d) a way of increasing efficiency as well as effectiveness in any organized effort to cope with disasters.

If this is valid, it follows that we should stress the general or generic approach in our educational efforts. Let us teach about the common human and social aspects of all disasters. In terms of the knowledge that should be passed on there are far more important similarities than superficial differences. Biologists have long taught that bats, human beings, and whales should all be treated as having more important biological characteristics in common than the superficial differences of their size and where they reside. They are all mammals. This means they all bear their young alive, have circulating warm blood systems, nurse their young, have four valve hearts, and so on. We should in the disaster area likewise teach about important social similarities rather than noting less important surface differences.

Education about preparedness planning.

Of the many things which could be reported about research findings and observations on disaster preparedness, we want to note two general but very important themes. They ought to be incorporated into any educational effort.

The first is that planning should be adjusted to people instead of forcing people to adjust to plans. Unfortunately, studies consistently indicate that much societal, community, and organizational level planning typically assumes that human beings ought to be made to follow plans. That is, planning is often undertaken with the very highly questionable idea that the behavior of potential or actual disaster victims should follow whatever is specified or detailed in emergency policies or documents.

This is bad. It might seem logical that people should follow plans. But this is an unrealistic view. Much disaster planning is done from the viewpoint and for the convenience of the agencies or organizations drawing up the plans. Too often, such plans require people to deviate sharply or to act in ways quite different from their normal, everyday behavior or what they are likely to do in an
emergency. Any planning which requires drastically different behavior from the usual routines or typical responses under stress, is very unlikely to be followed too closely. For example, planning which specifies that evacuees should use unfamiliar roads only insures that such an evacuation will not proceed smoothly.

Realistic planning requires that disaster plans be adjusted to people and not that people be forced to adjust to plans. Research indicates that this is a very important point which is generally overlooked. To repeat, effective disaster planning incorporates everyday normal behavior and typical stress responses. Plans should not require totally different or unlikely behaviors. Planning needs to be adjusted to people, not people to plans. For example, people simply will not evacuate if they are unsure of the safety of other close but absent household members. Evacuation preparedness which focuses on leaving an area rather than the social ties of potential evacuees, is poor and unlikely to be successful.

A second major theme from research studies is that it is a mistake to equate disaster planning with the drawing up or the production of written plans. Too often a written plan is considered to be the heart of disaster planning. In fact, the production of a written document is often the only way bureaucrats evaluate organizational actions.

But written disaster plans are at best only one part of real disaster preparedness. At times the plan itself may be the least important part of the whole disaster planning process. Planning involves meetings and interorganizational contacts and communication. It involves training exercises and disaster rehearsals. It involves assessing risks and creating linkages among relevant groups. It involves creating certain kinds of social climates or attitudes favorable to coping with disasters. Most important of all, good preparedness planning involves thinking about disaster situations. Little if any of these activities require writing a document.

This is simply a way of saying that disaster planning should be thought of as a process and not solely the production of a product, that is a written plan. In fact the existence of a written document can actually be dysfunctional or dangerous. It may mislead officials into thinking they are prepared for a disaster because an official plan exists.

As we have just stressed, we know from research that good disaster preparedness requires adjusting the planning to people rather than vice versa and focusing on the planning process rather than a plan. If this is our knowledge, we ought to teach it. We should insist that those learning about disaster preparedness planning not waste their time on unrealistic plans. But this can only happen if those
who educate about disasters, themselves have the correct point of view or knowledge.

Education about emergency response.

We have often talked and written about what disaster research has found out about individual and organizational responses to disasters. The knowledge about this is solid and substantial. Thus, in many ways, I can only repeat what some of you have heard before. One theme here is that human beings react remarkably well to the great stresses of disaster situations. The very great majority of victims rise to the occasion. Another theme is that organizations frequently falter in attempting to meet the demands they face in disasters. Groups have many serious difficulties in trying to manage disaster induced problems.

In a paper I presented at the Emergency 82 Conference in Geneva (see Proceedings, 1983) I emphasized that any assistance provided in disasters could only be useful if it were based on a correct view or assumption of what actually occurs during the emergency period. If the assumption is wrong, the assistance may very well be misdirected, unnecessary, inappropriate or simply duplicative of what is otherwise available. Thus, if it is incorrectly assumed that victims need immediate mass shelters, or that it is necessary to immunize against typhoid fever on a large scale, such assistance may not only be useless but will also delay the delivery of services actually needed.

Unfortunately, studies indicate that help and goods provided during the trans-impact or emergency time period often reflect an incorrect view of the actual behavior that occurs and the real needs that are present. Many of the views held by emergency officials and agencies are mistaken and mythological. In general, there is a strong tendency to believe that human beings and local groups do not withstand the impact of a sudden disaster very well. It is often thought that victims are overwhelmingly bewildered and stunned, resourceless and without the absolute necessities of life, and dependent and passively waiting for outside help and assistance.

But except among a few people in truly catastrophic but very rare disasters (such as in Jamaica and in Bangladesh earlier this year), this is seldom the condition of survivors. Victims are not psychologically incapacitated by the shock of a disaster. They rarely lose all their pre-crisis goods and resources. They continue to struggle with the conditions presented by their environment as they did before the disaster. They do not need to be motivated to engage in adjustment behavior which is reasonable for their circumstances. In other words, victims will continue to attempt to cope with their disaster environment in the same way as they did with their pre-impact environment. They will use whatever tangible and intangible resources are at hand. The view, deeply
entrenched in the thinking of many emergency group personnel and relief and governmental officials that victims are totally helpless and impotent, is a myth.

As I said in the Emergency 82 Conference, and will repeat here again, both research and practical experience agree on how well disaster victims respond. Several quotations illustrate this point (taken from Cuny, Disasters and Development, 1983 and from Ian Davis, Shelter After Disaster, 1978, among others).

"Disaster victims go to great lengths to help and take care of themselves and their families and friends usually in a very skilled and competent way. All human societies have a long record of surviving through war, crop failures, floods, fires, etc., over thousands of years of existence, often without external aid."

"People who have lost their homes usually go to the houses of friends or relatives whenever possible and great numbers are usually absorbed in this way in most disaster situations. People can be helped to do this by providing transport, small amounts of cash and food, etc."

"Disaster victims will quickly rebuild some form of shelter for themselves using local material, or materials recovered from their previous homes. It means that every assistance and encouragement should be given to this inherent attitude of people - and that specific items, for instance roofing materials, should be made available either at cost or subsidized to encourage this self-help action."

"Relief officials consistently fail to recognize what one might describe as the natural relief mechanism existing in the disaster society. Victims are rarely the bewildered, resourceless and dependent beings that they are depicted as being in news bulletins and in fund raising publicity material. Whether it be the transport of victims to hospitals, in the evacuation of a city or in the provision of emergency shelter, it is the victims themselves who carry out most of what needs to be done."

It is important that anyone interested in disasters in any way know about the disaster mythologies. We know the myths. Others should be taught about them. Probably any educational program about disasters should have a section on disaster myths.

On the other hand, responding organizations do play a very important and vital role in the aftermaths of disasters. But they are plagued with problems in trying to manage a disaster. Let us note four typical problems.

For one, responding organizations should know that in many cases, the most valuable role they can play is to be supportive rather than primary players or actors. Often they should simply
supplement or otherwise facilitate the capacities of survivors to cope with disaster. For example, organizations can help by providing transportation so that evacuees can go to relatives and friends. Taking the lead or setting up emergency mass shelters or tent cities is seldom necessary except in the most catastrophic and unusual of situations. The point is that responding organizations must recognize that sometime their most useful role is secondary support rather than primary leadership.

Of course there are some disaster response features which do require the presence of organizations with relevant resources. Restoring railway tracks or highway bridges is something individual survivors can not normally do. Particularly when expertise (e.g. knowledge about hazardous chemicals) or special equipment (e.g. earth moving machines) is needed, the role of some organizations becomes crucial. Put another way, the need for specialized organizational response is not always recognized.

Third, there often is a necessity to mobilize and manage the tangible resources which survive a disaster. Even in massive disasters, the problem is less the absence or destruction of all relevant material resources, as it is one of mobilizing and managing them. Thus, much is often made about the absence of communication at the time of disaster. The fact of the matter is that in the vast majority of cases, communication facilities and informal communication networks exist even after impact. The real problem is in finding and using such resources.

Finally, and perhaps most important of all, organizations and agencies can provide the intangible resources so often urgently needed at the time of a mass emergency. We have in mind here the dissemination of information and the distribution of knowledge about has or has not happened, what is and is not needed. Victims can do much for themselves. But they often lack the information which will allow them to act appropriately. Stricken communities can do much for themselves too. But frequently they also lack knowledge of how to go about doing relevant things. In fact, research shows that if there is one crucial task at the height of the emergency time period, it is simply that of establishing a correct overall picture of what has occurred. Individual victims cannot provide such information. Such knowledge is best collated by outside groups. Emergency personnel therefore have to make sure that they avoid working with misconceptions or myths about in their efforts to assess the situation and arrive at some estimates of problems and needs.

This will avoid, for example, the typical exaggeration of damage estimates which often lead to a bad overestimation of housing needs, or the misperception of post-impact health threats which have no basis in reality, but may lead to an influx of unusable medical supplies and personnel.
Perhaps I have gotten into more detail than is necessary. What I am trying to say is that we need to educate everyone to the fact that organizational responses to disasters must be selective along with a real recognition of priorities. The notion of simply mobilizing all possible organizations to meet all needs after a disaster is both unrealistic and unnecessary. Our current research knowledge provides us a good idea of what usually has to be done by what groups. Let us not continue to reinvent the wheel. In the disaster area, we not only know about the wheel but presently have good understanding of the organized vehicles which use wheels. Put another way, and less figuratively, anyone who wants to educate themselves about appropriate organizational behaviors in disasters, can find a wealth of usable information. Let us use it. Let us teach it.

Education about recovery.

What do we know about recovering from disasters? Perhaps the most important thing for educational purposes is that often it is the stage with not only the most but the worst problems. In the emergency of the impact phase, for example, things may not be done efficiently or effectively, but they get done one way or another. Search and rescue is accomplished. Casualties are found. Survivors are provided the immediate necessities of life, etc. But sometime things are not done in the recovery phase. For example, at times evacuees are not returned to their areas. Damaged or destroyed facilities are sometime not restored. Village life is often never brought back to its pre-disaster condition, etc.

Why should the recovery phase be so frequently poorly handled? Studies of this phase of disasters would suggest at least three reasons. First, even after the emergency time period of a disaster is over, a great deal of flexibility in organizational behavior is needed. But both public and private bureaucracies are often at their worst in the longer-run recovery period. At the height of a disaster crisis, even the most rigid and inflexible bureaucracies will either suspend their normal rules and regulations or otherwise will simply ignore them, as officials struggle to save lives and property. But once the emergency has passed, bureaucrats quite frequently insist on returning to their usual way of doing things. This typically entails slow, standardized and rigid procedures involving much paperwork. However, quick decisions adjusted to situational contingencies carried out with as little paperwork as possible are often needed during the post-recovery period.

Second, while there often is a period of high solidarity, morale and consensus immediately after a disaster, as time passes, new disagreements and conflicts generated by the relief effort as well as pre-impact group, organizational and community differences, cleavages and hostilities, will all surface again. Although there are rare exceptions, morale immediately after a disaster is usually high. Pre-impact differences are set aside. Often there is a
period of consensus and solidarity among and between the organizations and groups involved in providing assistance to stricken communities. But in many instances, this period of altruism and good will does not last very long. The pre-impact cleavages between groups in the population and among local, regional and national agencies will soon reemerge. In fact, the relief effort itself is almost certain to generate new cleavages, conflicts, and hostilities. There will be perception of inequity in the receiving of aid, of favoritism in the giving of assistance. External aid, in particular, may become subject to corrupt practices. It is necessary to recognize that much of this conflict is an integral part of the recovery process.

Third, often too much effort is placed on recovery activities per se instead of taking advantage of the disaster event as a possible change agent. At times, a very narrow focus is taken during the recovery effort. Emphasis is on restoration. Thus, the opportunity for using the disaster as a change agent is overlooked or ignored. For example, the provision of temporary housing can inhibit the construction of more permanent quarters. Similarly, depending heavily on the convergence of materials and specialists from outside the affected country does not encourage the development of local skills and resources. There is in many ways a return to the pre-impact situation. What we are trying to suggest is that a post-disaster period often creates opportunities for doing things differently from the way they had been done in the past. Similarly, it might be possible for developing local capabilities not present before. However too often effort is expanded on reinstituting the old when the same effort could be better expended on creating the new, such as moving a village site away from a flood plain, or training unskilled youths to be carpenters.

We are implying that the post-disaster recovery period should be integrated into broader and longer-run societal and community developmental planning. But in too many instances, actions undertaken during recovery are treated as a separate cluster of activities. Thus, for example, although the issue might be seen as restoring damaged buildings, the involved village might be part of a larger regional or national development plan aimed at changing the lifestyle of the inhabitants. Especially in disaster prone countries, a case could be made for disaster planning to be treated as part of overall developmental planning. At the very least, there should be some linkages between the two kinds of planning.

Education about prevention and mitigation.

Thus far our remarks have assumed that a disaster has occurred. But a more effective way of coping with sudden disasters is to prevent them in the first place. Of course total elimination of all disasters is an impossibility in this or any other world we
know. Nonetheless, the prevention or mitigation of disasters can be an ideal goal for all those concerned with these kinds of event.

Why? Because today compared with even a few decades ago, we know far more about the nature of disaster agents. Given this knowledge, it is possible, for example, to predict often far in advance the appearance and the path of cyclones, floods and volcanic eruptions. We also understand much about the physical effects of disaster agents. Thus, we can erect building structures less likely to collapse in the face of earthquake shocks or tornadoes. In like manner, our knowledge of the nature of different technologies and their possible effects, is considerable. So we can build fail-safe mechanisms for automatic shutdown into nuclear plants. Trains and trucks can be designed so that in case of accidents and wrecks, there will be minimum leakage of toxic chemicals. Much can and is being done to prevent and mitigate disasters. More along this line can be encouraged by the passing on of the knowledge we have.

Nevertheless, there are substantial costs and other limits to the physical safeguards and the safety engineering measures which can be employed. Equally as important, these activities are not independent of human and group factors.

This is very well illustrated by the Three Mile Island nuclear accident in the United States. The President's Commission which studied the event concluded that the major factors involved in the accident were "people problems". These problems stemmed not just from what the plant crew did in the control room, but from how personnel were originally trained, how construction decisions were or were not made, how emergency planning was developed, etc. These were the sources of the potential disaster (The same seems to have been true in the Chernobyl nuclear plant disaster in the Soviet Union). The technology itself functioned reasonably well. The various mechanical safety devices operated within reason. It took human errors, bad judgments, knowledge gaps, inadequate training procedures, poor preparedness planning measures, confusion over responsibilities, failures to recognize consequences of decisions long before the accident, etc., to turn an initial relatively minor technical mishap into a potential catastrophe. As they are in all disasters, human and group behaviors were the ultimate source of problems.

The lesson here is a more general one. Greater emphasis should be given to non-structural measures such as educating the various subgroups in the public about what dangers they face in their localities and how they can best protect themselves. Training public officials about their responsibilities for disaster mitigation is another useful activity. Teaching planners and administrators what they could do to mitigate disasters should also be encouraged.
At another level, laws and regulations can be passed, for example, to discourage people from building or residing in known dangerous areas such as flood plains. Special attention can be given to taking steps to minimize the impacts of disasters on those segments of the population known to be particularly at risk, namely the very young and the elderly. Engineers and lifeline specialists might be educated about what they should take into account regarding disasters in the development of their designs. The list could go on and on. But the general point is that much of what we know about the prevention and mitigation of disasters should be made available to those individuals and groups that can use such information.

To summarize: we know much about the preparedness, the response, the recovery, the prevention phases of disasters. I have indicated some major themes which ought to be stressed in each time period. Let us teach them. Let us educate others about what we know of coping with disasters.

Before I conclude let me issue one important warning. It is naive to suppose that knowledge per se will automatically lead to appropriate actions. In many societies the great majority of the population knows about the link between cigarette smoking and cancer, or the link between certain sexual practices and AIDS. However, despite this knowledge many people continue their usual behavior patterns which can endanger their lives. The same could be true in the disaster area.

So whatever educational programs we promote, whatever disaster knowledge we attempt to transfer, it will be necessary to build in feedback procedures. That is, we must have means to find out if we are communicating what we want to communicate. Thus, I would suggest we work not only at sending information to those that need to learn, but that we also work at obtaining some indication of what the learners have learned.

This is hardly a radical idea. In formal schooling at all levels, there are tests and examinations. They aim at obtaining feedback on what students have learned. We should build in a roughly similar feedback if we are going to use education as a counter-disaster strategy.

How does one test if the mass media have the right ideas about disaster phenomena? How does one examine if local community officials have learned the appropriate knowledge they need about disasters? How does one obtain feedback that will confirm disaster planners and managers have unlearned disaster myths? It will not be easy to answer these questions. But we must get answers. Otherwise we will not know if we are doing any teaching at all.

It is probable we will have more and worse disasters in the future. But we have a choice. We can let the trend escalate markedly. Or
we can attempt to slow it down or maybe even stabilize negative consequences. Either of these last two results would be a mark of success.

But it will not happen unless you or persons like yourself act. You must be among those in your societies to stress that education is a major counter-disaster way of coping with calamities and mass emergencies. You must spread the word. You have to indicate how transfer of knowledge can and should take place.

For example, you must insist that there are disaster relevant aspects about policies regrading land use in rural flood plain areas and building codes in earthquake prone cities. You must provide advice on how to integrate disaster planning with societal and community development planning. You must indicate that health personnel should be informed far in advance about the real rather than the mythological medical problems they will be facing in disasters. You must show how children as part of their everyday schooling, can be taught to respond correctly to the typical sudden hazards threats in their own local communities, be these cyclones, flash floods, volcanic eruptions, etc.

For you or for anyone like you or the organizations that you represent to be able to do these and many other things which could be mentioned, there is a need to know what is already known. But as we have indicated much is known from studies already undertaken. A substantial and solid body of knowledge derived from systematic research about the human and group aspects of disasters is available. The general principles which can be derived from these studies can be taken and applied to specific practices relevant to local situations.

Let me conclude. I hope I have presented a few ideas which have gotten you thinking. Let us turn now to exchanging among ourselves even more relevant ideas. I hope to become better educated myself as I interact with some of you. By the end of this conference we should all have much knowledge on how to make education a very effective counter-disaster measure. We have started. Let us move towards finishing up.