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SOCIOLOGY AND SOCIAL PSYCHOLOGY
OF DISASTERS: IMPLICATIONS FOR THIRD
WORLD AND DEVELOPING COUNTRIES*

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ABSTRACT

It would be possible to be very discouraged by the sudden or acute disasters facing the world in the future. Increasing populations and greater population density in vulnerable areas almost insure natural disaster agents in the years to come will threaten to be more disastrous than they have been in the past. Also, the development of complex technologies, while beneficial in many respects, will additionally bring dangers in the future to localities previously unthreatened by natural disaster agents.

However, the probable greater dangers will be partly balanced by our increasing knowledge of all aspects of disasters. Especially in the last few decades, systematic research has brought us substantial information about human and group behavior in sudden disaster situations. Such knowledge, derived from studies by social scientists, of individual and collective behavior under extreme stress can help us better prepare for, respond to, recover from and prevent or mitigate acute disasters. Much yet remains to be scientifically ascertained, but those with responsibilities in the disaster area now have an evergrowing body of validated information and knowledge to which they can turn.

Most of our paper focuses on the results of the social scientific studies of sudden disasters. We try to illustrate some of the major ideas and conclusions that this body of research has developed. An attempt is made to present selective but important generalizations and principles relevant to the preparedness planning, the emergency time response or prevention of sudden disasters in the first place. The following are illustrative of points discussed.

Research has demonstrated that much preparedness activity is misguided in that the planning assumes people should adjust to plans rather than the converse. There is also an unfortunate tendency to conceive of preparedness as primarily the drawing up of written plans; whereas, research indicates that the production of plans should be only a minor part of the process. Studies also show that both officials and victims have very incorrect views about behavior and problems during the emergency time of disasters. Response behavior is more adjustive and reasonable than is usually projected, with the mobilization and management of intangible as well as tangible resources being more of a problem than the absence or destruction of resources. Research also shows that relief and recovery measures are often handicapped by a lack of flexibility and a failure to understand that heightened conflict is an inherent aftermath of almost all major disasters. Advantage is seldom taken of disasters as possible change agents even though restoration and reconstruction activities could be integrated into broader and longer-run community and societal developmental planning. Measures to prevent or mitigate disasters are often not given the highest priority or are incorrectly attempted. Studies indicate that both officials and the population at-large need to better understand the value of non-structural measures, such as public education, and to recognize that an attempt to motivate primarily through fear will not usually be very effective.

However, research, to be useful, has to be implemented in policy, planning, operational and management activities by key officials and organizations. Such individuals and groups first have to learn what is known, sometimes conducting their own studies, and then have to apply general principles from research into specific practices relevant to local situations. Research implementation will prevent some potential disasters from happening and also prevent some minor emergencies or accidents from turning into major disasters. When disasters do occur, the implemented research knowledge can considerably soften the impact of disasters and increase the efficiency and effectiveness of response and recovery measures and activities. All can only benefit from taking seriously the results of social scientific research into disasters.

History records that most groups in most parts of the world have been subjected to major disasters and catastrophes of different kinds. Disastrous agents have killed and injured millions and inflicted incalculable destruction and damage on lands and goods. Even if we exclude the results of war, civil strife and other deliberative human acts such as sabotage or terrorism, the accidental disasters alone have taken a tremendous toll. In fact, the picture remains quite bleak even if we only concentrate on sudden and relatively localized types of disasters and do not consider the more diffuse and slowly developing kinds such as droughts and famines. The human race has suffered a great deal from those past disasters which have just suddenly appeared.

As we look out at the world, we could possibly become very discouraged by what seems to face us with respect to future acute or instantaneous disasters. Whether we think of natural disasters such as those created by earthquakes; floods; cyclones or hurricanes; tsunamis; and volcanic eruption or whether we think of disasters created by technological accidents or breakdowns resulting in toxic or chemical poisonings; industrial explosions and mass fires; dam collapses; pollution of air, water and land; and nuclear radioactive contaminations, the future appears worse than the present and the past. Stated another way, we seem to be faced with an ever increasing number of acute disasters bringing about ever greater casualties, property destruction, ecological damages and social disruptions.

Increasing populations and greater population density in vulnerable areas almost insure natural disaster agents will threaten to be more calamitous than they have been in the past. As more people crowd into the same spatial area, there is simply more a natural disaster agent can hit. With more people often concentrated for example in flood plains or along earthquake faults, a future disaster agent of the same objective magnitude as one in the past

could result in far more casualties and greater material losses.

Also, the development of new technologies or the adoption of old ones in places where they had not been used before means we are constantly adding possible new disaster agents to our list of old natural disaster agents. The technologies are beneficial in many respects, but they do and will impose future danger to many localities previously unthreatened by natural disaster agents. The ever increasing production, transportation and use of dangerous chemicals, for example, means that many people in many areas are now subject to both acute and chronic chemical emergencies, a previously nonexistent threat for them. The new technologies can, in fact, endanger populations in localities extremely distant from the specific place of a technological accident as would be illustrated by the possible radioactive fallout hundreds, if not thousands, of miles from a malfunctioning nuclear plant. No part of the world is safe from a very distant nuclear accident. In addition as societies seek the benefits of high-rise office and apartment buildings, complex electric power grid systems and industrial plant or petrochemical complexes, they also introduce such risks as massive fires, blackouts and pollution episodes as well as explosion possibilities which were previously absent from their way of life. As the world increasingly becomes urbanized and industrialized, the seeds for disaster are being planted everywhere.

The picture of the future thus far presented is depressing. As set forth it has focused only on the increased risks of possible disasters. Obviously the risks are partly being balanced by an increasing body of knowledge about all aspects of disasters. Today, even compared with a few decades ago, we know far more about the nature of disaster agents. Because of this knowledge it is possible, for example, to predict often far in advance the appearances and the paths of cyclones and floods. We also know a great deal more about

the physical effects of natural disaster agents and, thus, for instance, can erect building structures less likely to collapse in the face of earthquake shocks. In like manner, we are expanding our understanding of the nature of different technologies and their possible effects. For example, fail-safe mechanisms for automatic shutdown can be built into nuclear plants. Trucks and trains 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, on the basis of knowledge of physical aspects of disasters, to prevent or to weaken the impact of disasters when they occur.

However, there are costs and other limits to the physical safeguards and the engineering safety measures which can be employed. Equally as important, physical and engineering activities are not independent of human and social factors. This is very well illustrated by the Three Mile Island nuclear accident in the United States. The President's Commission which studied the accident concluded that the major problems were "people problems" not just stemming from what the plant crew did in the control room but from how people were originally trained, how construction decisions were or were not made, how emergency plans were developed, etc. These were the sources of the potential disaster. The technology itself functioned rather well; the various mechanical safety devices worked respectably. It took human error, bad judgments, lack of knowledge, inadequate training, poor prior preparations, inadequate communication, confusion over responsibilities, failure to recognize consequences of decisions long before the incident, etc. to turn a technically non-major incident into a potential disaster and a massive catastrophe. Human behavior and group actions were, as they are in all disasters, the ultimate source of problems. Unless we cope with individual and collective activities, essentially people and group problems, we will not be able to prevent future catastrophes or to soften their impacts.

Although unknown to most people, systematic research, especially in the last few decades has fortunately brought us substantial information about human and group behavior in disasters. Social scientists in a number of countries around the world, ranging from France to Australia, and from Canada to Japan, have been studying individual and collective behavior under sudden extreme stress. They have conducted hundreds of on-scene field studies of disasters resulting from natural disasters and technological accidents and have conducted studies of preparedness measures and of post-impact recovery activities. There is no time or space here to even attempt to summarize the body of knowledge in any detail.

Let us simply say there are two major clusters of research. One set of research has focused on social psychological studies of individuals, especially victims. Studies have been made, for example, of how people psychologically respond to warnings and prepare in the face of alarms. Is panic a likely response when danger threatens? What influences affect if, when and how endangered persons evacuate? What do people do in emergency shelters, and how important are family ties in emergencies? Other research has looked at the impact of disasters on the mental health and morale of survivors, and what victims need in order to reestablish normal life. What individual losses are most damaging, and what do people learn from the experience of a disaster? What are the sources of conflict between relief officials and the people they are assisting? Another set of research has focused on sociological studies of organizations and communities. What kinds of communities are most likely to prepare for disasters? Which organizations need to take the lead in emergency preparedness? Can public information and educational campaigns be successful? When a disaster occurs, what problems are there in communication, coordination and control? Research has looked at the behavior of relief agencies and the

problems they have in mobilizing resources and undertaking such tasks as search and rescue and mass housing. What necessary measures should have the highest priority, and how is external aid best channeled? How do bureaucracies work under great stress? What are the sources of conflict in the post-impact period? How long does recovery normally take? These examples merely hint at the range of individual and collective disaster-related phenomena studied.

Perhaps the most important conclusion reached from both sets of studies is that there is order, regularity and predictability of some kind about both individuals and groups with respect to their disaster behavior. Sometimes the point of view is taken that every society, in fact, every community is different and unique; similarly that no disaster is like any other; and that all disasters are unique. This is only true in one sense, as the scientific research has shown. Every individual is unique and every situation is also unique. Nonetheless, there are many common elements which individuals share with other individuals and situations with other situations. To draw a parallel - every human is unique, but we can, nonetheless, vaccinate against disease, or if a disease occurs, we can, nonetheless, treat and help a person recover by using common and standard medical treatment. The same is true in the disaster area. The people who are involved in disasters and the situations in which disasters occur are all different from one another, but they also all share much in common. Research has shown there will be common elements and similarities whether the victim is someone in central Africa or in Latin America, whether the stricken community is in the Middle East or in Asia.

This body of research knowledge can be useful in a variety of ways. For our purposes, we can think of it as being helpful in four major ways. It can help us:

1. Prepare
2. Respond
3. Recover, and
4. eventually Prevent or at least Mitigate disasters.

In short, the disaster studies already done can be useful in disaster preparedness, response, recovery and prevention.

Before elaborating on this, we should stress that while much has been scientifically ascertained, much is yet poorly studied. Some kinds of disasters, especially slow moving and diffuse ones such as famines, have been little examined insofar as their human and social components are concerned. Certain questions have been barely explored, for example, the handling of large numbers of the dead. And most, although not all, of the research has focused primarily on urbanized and industrialized societies.

Nonetheless, the quality and quantity of the research on the human and social aspects of disasters is beginning to be impressive. It allows us to go beyond what speculation, educated guesses, anecdotes, or even limited, practical on-the-ground experience will allow. Those with responsibilities in the disaster area now have an evergrowing body of validated information and knowledge to which they can turn for guidance.

1. Findings and observations on preparedness.

Of the many things which could be reported about research findings and observations on disaster preparedness, we want to note only what might be called two general, but very important, themes.

The first is that study after study consistently shows that societal, community and organizational disaster planning typically or usually assumes that people should adjust to the planning or the plans. That is, planning is undertaken with the idea that the behavior of potential or actual disaster victims should follow whatever is specified or detailed in emergency policies or documents.

This might seem logical, that is, that people should follow plans, but it is usually very unrealistic. Most disaster planning is done from the view point and for the convenience of the agencies or organizations drawing up the plans. Too often, plans typically 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 plan which requires drastically different behavior from the usual routines or typical responses under stress is unlikely to be followed too closely.

Realistic disaster planning requires that 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; it does not require totally different or unlikely behaviors. Plans need to be adjusted to people, not people to plans, if there is to be any expectation that disaster planning will succeed.

A second major theme from the 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.

Written disaster plans are at best only one part of real disaster preparedness. In fact, at times, the plan, itself, may be the least important part of the whole disaster planning process. Planning involves thinking about possible problems. It 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.

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 plan or a document can actually be dysfunctional or dangerous. It may mislead officials into thinking they are prepared for a disaster because an official paper exists. Actual disaster preparedness involves a variety of different activities, not just the existence of a written document. Studies show that disaster preparedness planning is most effective when officials view the planning activities as an unending process. Planning and not just plans need to be constantly kept up-to-date and revised as circumstances change.

2. Findings and observations on response.

Any assistance provided or contributed to disasters by outside sources or official groups can only be useful if it is based on a correct view or assumption of what actually occurs during the emergency period. If the assumption is wrong, the aid may very well be misdirected, unnecessary, inappropriate or simply duplicative of what is otherwise available. 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 of a disaster 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 help and assistance. Except in truly catastrophic but very rare disasters, this is very 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 and do not need to be motivated to engage in adjustive behavior which is reasonable for their circumstances. In other words research shows that disaster victims will continue to attempt to cope with their disaster environment in the same way as they did with their pre-impact environmental conditions, and they will use whatever tangible and intangible resources are at hand. The view, deeply entrenched in the thinking of certain emergency group personnel and relief and governmental officials, that disaster victims are totally helpless and impotent is usually a myth. Even in catastrophic situations, there is not the panic and the breakdown of the social order which is often assumed. Destruction is very seldom total; there are always goods and things around which can be used.

This is not only a research finding but is also consistent with what has been learned by those officials and agencies who have operated in many disasters and who have attempted to draw lessons from their practical experiences. Several selected quotations from recent writings of some of those concerned with providing emergency aid in disasters illustrate this point very well:

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 in 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.*

As both quotations imply, regardless of the local victims' ability and willingness to act for themselves, emergency officials and relief agencies still play a very important and vital role in the aftermath of a disaster. Four such activities might be noted. One, organized emergency help can supplement or otherwise facilitate the capacities of survivors to cope with the disaster, for example, by providing transportation so that evacuees can go to relatives and kin. Second, only organizations with appropriate resources normally do certain disaster-related tasks, for example, restoring railroad tracks or highway bridges.

Third, there is often 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 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 a disaster. The fact is that in the vast majority of cases, communication facilities and informal communication networks exist even after impact - the problem is to find and use such resources.

Finally, and perhaps most important of all, official groups 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 what has or has not happened, what is and is not needed. Victims can do much for themselves, but often lack the information which will allow them to act appropriately. Stricken communities can do much for themselves but frequently lack knowledge of how to go about doing things. In fact, research has shown that if there is one crucial task at the height of the emergency time period, it is simply that of obtaining a correct overall picture of what has occurred. Individual victims cannot provide such information; such knowledge has to be collated by outside groups. Emergency personnel have to make sure that they avoid working with misconceptions or myths about disasters and that they have the major responsibility for validly assessing the situation and arriving at some estimates of damages and needs. This will avoid, for example, the typical exaggeration of damage estimates which often lead to a very 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 unneeded and often unusable medical supplies and personnel.

3. Findings and observations on recovery.

Research studies suggest that in the absence of appropriate disaster preparedness planning, no stage of the disaster process - be it the pre-impact warning period, the impact period, or the post-impact recovery period is usually handled particularly well. However, it does seem that the recovery and longer-run relief stage is frequently the one with the most 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, sometimes, things are not done in the recovery phase. Sometimes, evacuees are not returned to their areas,

damaged or destroyed facilities are not restored, village life is never brought back to its pre-disaster condition, etc.

Why should the recovery phase often be so poorly handled? Studies of this phase of disasters would suggest at least four reasons. First, even after the emergency time period 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. Second, while there frequently is a period of high solidarity, morale and consensus immediately after a disaster, as time passes, new disagreements and conflicts generated by the re-effort as well as pre-impact group, organizational and community difference cleavages and hostilities surface again. 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. Fourth, far more than necessary, post-disaster recovery and long-term relief measures are undertaken independent of broader and longer-run societal and community developmental plans.

Let us briefly examine each of these points in more detail. To ignore them is to almost insure a less than satisfactory recovery from a major, sudden disaster.

At the height of a disaster crisis, even the most rigid and inflexible bureaucracies will either suspend their normal rules and regulations or otherwise simply be ignored by people and officials struggling to save lives and property. But once the emergency has passed, bureaucrats quite frequently insist on returning to their usual way of doing things, which typically entails slow, standardized and rigid procedures involving much paperwork. However, quick decisions adjusted to unique circumstances and the carrying out of measures with as little paperwork as possible are often needed during the post-recovery period. After a disaster occurs, it is, of course, too late

to attempt to develop the kind of bureaucracies which would be effective and efficient in such a context; the needed flexibility has to be built into pre-impact disaster preparedness planning.

Although there are exceptions, morale, immediately after a disaster is relatively high, pre-impact differences are set aside, and often there is a period of consensus and solidarity among and between the organizations and groups involved in providing relief and assistance to stricken communities. In many instances, this period of altruism and good will does not last very long. The pre-impact differences including cleavages, conflicts and hostility 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 perceptions 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. However, if the sources of possible disagreement are recognized in disaster preparedness planning, sometimes the edge can be taken off the inevitable disputes and disagreements.

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 country does not encourage the development of local skills and resources. What we are trying to suggest is that a post-disaster period may create opportunities for doing things different from the ways they normally have been done and for developing local capabilities not present before. At

times, effort is expended to reinstitute the old when the same effort could be better spent on creating the new, such as moving a village site away from a flood plain, or training unskilled youths to be carpenters. Again, nothing of this kind will occur unless some prior thought has been given to it. The aftermath of a sudden disaster is not the time to start thinking of new community and societal developmental planning.

As just indicated, we are implying that the post-disaster recovery period should be integrated into broader and longer-run societal and community developmental planning. In too many cases, actions undertaken during recovery are treated as a separate cluster of activities. Thus, for example, although the problem might be seen as restoring damaged buildings, this same village might be part of a larger regional or national plan aimed at changing the lifestyle of the inhabitants. Particularly in disaster-prone countries, a case could be made for disaster planning to be treated as a part of overall developmental planning. At the very least, there should be some linkages between the two kinds of planning, especially with respect to the longer-run post-disaster recovery efforts.

4. Findings and observations on prevention and mitigation.

Our discussion, thus far, has centered around the assumption that a disaster has occurred. Obviously, the most effective way of dealing with sudden disasters is to prevent them in the first place. Total elimination of all disasters is an impossible achievement, and, as noted earlier, we are, in fact, faced with more rather than fewer disasters in the future. Nonetheless, the prevention of disasters should be the ideal goal of all those concerned with these kinds of events. It should have the highest priority in our thinking and actions.

Why? Because some acute disasters, especially those created by techno-

logical accidents or breakdowns, can in principle be prevented. Even when disasters cannot be prevented, as is true in the case of most natural hazard agents, populations and areas can be made less vulnerable to them. People not have to live in flood plains, directly stop earthquake fault lines; on slopes of volcanoes or in low lying coastal areas unprotected against any high tides. A disaster is always a combination of an agent and a vulnerable population. The former perhaps cannot be effected by human decisions; the latter certainly is a function of human behavior.

But even when we cannot prevent disasters by eliminating the agent or removing a vulnerable population, we can in almost all cases mitigate the effects of disasters. This is and has been done in certain parts of the world. Thus, in many of the more industrialized and urbanized societies, the casualty toll of disasters has been reduced in the case of such agents hurricanes, floods, tornadoes and earthquakes. The rise in property damage has even decreased although the major success has been in saving lives.

The same success is possible elsewhere, including developing and third world countries in which present-day disasters take tens of thousands of lives and often create losses that may cancel out a country's annual economic growth. If such disasters cannot be prevented, their effects can certainly be mitigated. But mitigation requires giving priority to such an objective and understanding the measures which are most appropriate for the problem.

There is a danger of being lured into the drama of the emergency period of a disaster. But, too often, that is like treating the symptom of a headache without ascertaining the pathological conditions responsible for the pain. While we must continue to pay attention to emergency disaster needs, we must also attend to how disaster effects might be mitigated if not prevented.

Studies indicate that sometimes simple, technical solutions are sought for example, cloud seeding of cyclones or the building of bigger dams to

prevent floods. While such structural or engineering measures should continue to be pursued, there is little evidence that they can provide an ultimate solution. In many instances, there are indications that such measures may have unintended negative consequences, such as the disruption of a region's ecological balance.

More attention should be given to non-structural measures such as educating 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 preparedness is another useful measure. Informing emergency personnel how to recognize danger cues is still another non-structural measure. At another level, laws and regulations can be passed to discourage people from building on or residing in known dangerous areas. Special consideration can be given to preparing those segments of the population known to be particularly vulnerable to disasters, namely the very young and the elderly. Last but not least, improvement in warning messages can contribute markedly to mitigating most sudden disaster effects.

Studies show that often those working on disaster prevention or mitigation tend to stress the negative effects of not following their advice, suggestions or recommendations. But it is clear that attempting to motivate people primarily through fear is not a very effective way of bringing about change. More can be achieved by stressing the positive rather than the negative. More can be accomplished if efforts are seen as an integral part of everyday life and not something unusual or different from normal. Among other reasons, this is why providing disaster education to children as part of their regular schooling is a very effective way of easily reaching a large segment of the population. Studies about human learning suggest still other ways of teaching people about dangers.

Let us now turn to the application of the research information we have been discussing. Social scientific knowledge about disasters is not enough. Research, if it is to be useful, has to be implemented in policy, planning, operational and management activities by relevant officials and organizations. Someone has to translate the research into practices of different kinds. Such research implementation is not a luxury but a necessity if disaster planners and emergency personnel are to have any effect on what happens in disasters. This is simply another way of saying systematic knowledge about disasters is useless, unless it is used.

But something will not be used just because it is available. Studies of the problem indicate that we need initiative and leadership by the kinds of officials and organizations represented in this audience today. Actions undertaken by such strategically located individuals and groups as you represent is crucial.

There are many things you must do. As illustrations, let us mention only two. You must be the ones to alert your societies to the fact that they must start preparing for new kinds of sudden disasters in the future, such as the technological ones we mentioned at the beginning of our remarks, and that your people may suffer from the effects of disasters whose source may be quite distant, as in the case of air and water pollution or radioactive episodes. Whatever your present risks of disasters might be, there are others that loom in the future. Too often we let the present be dictated by the past, but we live only in the future. In the case of disasters, of course, we literally may not live if the future is drastically different from the past, and proper preparations have not been made.

But aside from your role as a messenger of possible future new calamities, you must also be the ones to point out in your societies the real meaning of

disaster preparedness. You must be the ones who must insist, for example, that there are disaster-relevant aspects about policies regarding land use in rural flood-prone areas and building codes in earthquake-prone cities. You must be the ones who can provide advice on how to integrate disaster planning with societal and community development planning. You must be the ones to indicate, for example, that health personnel should be informed far in advance about the real, rather than mythological, medical problems they will be facing at the height of a disastrous emergency. You must be the ones in your societies who will have to show, for example, how children as part of their everyday schooling, can be educated to respond correctly to the typical, sudden hazards and threats in their local communities, be these cyclones, flash floods, fires, or whatever.

For you, or for anyone like you or the groups 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. As we have been trying to indicate, much is known from studies already undertaken. A body of research knowledge about the human and social aspects of sudden disasters is available. The general principles derived from this research can be taken and applied to specific practices relevant to local situations.

Acquiring research knowledge and implementing it in various ways will neither stop all acute-type disasters from occurring nor solve all problems when they happen. However, implemented knowledge will prevent some potential disasters from becoming realities and also block some minor emergencies or accidents from turning into major catastrophies. And when disasters do occur, the implemented research knowledge can considerably soften the impact of disasters and increase the efficiency and effectiveness of response and recovery measures and activities.

In concluding, let us say that individuals and officials, communities and societies, can only benefit from taking seriously the results of social scientific study into sudden disasters. It is our hope that we will be able to explore this possibility in more detail in later sessions of this conference. In any case, if we have raised your consciousness about the human and social aspects of sudden disasters and have made you more aware of the sociological and other research information and knowledge which is available, we have accomplished our major purpose in making these remarks. Thank you for listening to me.

* Quotations are from Conference Report: Disaster and the Small Dwelling, Oxford, April 1978 in Disasters 4(1980): 140-153.

Selected Information Sources on Social and Group Aspects of Disasters

A. Publication Series

1. The Agency for International Development puts out Case Reports on Disasters in which U.S. government aid has been provided. Copies are available from Agency for International Development, Washington, D.C. 20523, USA.
2. The Disaster Research Center has a Book and Monograph Series, a Report Series, and a Historical and Comparative Disaster Series reporting mostly its own research. Information can be obtained by writing for the DRC Publication List from the Disaster Research Center, 128 Derby Hall, Ohio State University, Columbus, Ohio 43210, USA.
3. The Disaster Study Group at Uppsala University in Sweden has a Disaster Studies Series (with either English text or an English language abstract). Information can be obtained from the Disaster Study Group, Department of Sociology, Box 513, Uppsala University, S-751 20 Uppsala, Sweden.
4. The United Nations Disaster Relief Office publishes a series on Disaster Prevention and Mitigation. Copies are available from the Office of the United Nations Disaster Relief Coordinator, Palais des Nations, 1211 Geneva 10, Switzerland.

5. The Natural Hazards Research and Applications Information Center has a monograph series on different aspects of disasters. Information can be obtained by writing to the Center at the Institute of Behavioral Science #6, Campus Box 482, University of Colorado, Boulder, Colorado 80309.

B. Journals and Newsletters

1. Disaster Preparedness in the Americas. (newsletter)
Emergency Preparedness and Relief Coordination Unit, Pan American Health Organization, 525 23rd St. NW, Washington, D.C. 20037, USA.
2. Disasters: The International Journal of Disaster Studies & Practice.
Pergamon Press, Headington Hill Hall, Oxford OX3 0BW, Great Britain.
3. Journal of Hazardous Materials.
Elsevier Publisher, P.O. Box 330, 1000 AH Amsterdam, The Netherlands.
4. Hazard Monthly.
Research Alternatives, 10221 Arizona Circle, Bethesda, Maryland 20034, USA.
5. International Civil Defense Bulletin.
International Civil Defense Organization, 10-12 chemin de Surville, CH-1213 Petit-Lancy/Geneva, Switzerland.
6. Natural Hazards Observer. (newsletter)
Institute of Behavioral Science #6, University of Colorado, Boulder, Colorado 80309, USA
7. Unscheduled Events. (newsletter)
Disaster Research Center, 128 Derby Hall, Ohio State University, Columbus, Ohio 43210, USA.

C. Social Science Disaster Research Centers and Groups outside the United States

1. Australia Center for Disaster Studies, James Cook University of North Queensland, QLD 4811, Australia. (Professor Oliver)
2. Belgium Centre De Recherche Sur L'Epidemiologie Des Desastres, Universite Catholique De Louvain, Clos Chapell-aux-Champs 4, B-1200 Brussels, Belgium. (Professor LeChat)
3. Canada Emergency Communications Research Unit, Carleton University, Ottawa K1S 5B6, Canada. (Professor Scanlon)
4. Great Britain International Disaster Institute, 85 Marylebone High Street, London W1M 3DE, Great Britain. (Professor Seaman)

5. Italy Research Center for the Study of Natural Calamities,
Universita di Calabria, 87030 Arcavacata de Rende,
Italy. (Professor Battisti)
6. Italy Istituto de Sociologia Internazionale, Via Malta 2,
34170 Gorizia, Italy. (Professor Cattarinussi)
7. Japan Disaster Behavioristic Society, Tokyo University of
Foreign Studies, 4-51-21 Nishigahara Kita-ku, Tokyo,
Japan. (Professor Abe)
8. Japan Institute of Journalism and Communication Research,
University of Tokyo, Hongo 7-3-1, Bunkyo-ku, Tokyo 113,
Japan. (Professor Okabe)
9. Japan Institute for Group Dynamics, Nishinippon Shinbun
Kaikan 15F, 4-1 Ichome Tenzin, Chuo-ku, Fukuoka-shi,
810 Japan, (Professor Misumi)
10. West Germany SIFKU Institute Holtenaueer Str. 82, 2300 Kiel 1
West Germany. (Professor Metreveli)