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TECHNOLOGIES AND HIGHER EDUCATION

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Civil Protection, the New Technologies and Higher Education

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We are at a period of time in history when massive social changes are sweeping the world. Some of the most basic institutions and social arrangements are being basically transformed. An example is the major change occurring in the role and status of women, compared with the position they have had for centuries. This social trend along with others, such as the change almost everywhere to a market type economy, will indirectly affect the nature and quality of future disasters as well as how they can be planned for and managed.

However, given the focus of this Forum, we want to highlight three other social trends that will directly impact preparing for and responding to natural and technological disasters. They are:

1. The large scale development of civil protection or disaster management;
2. The computer-based information/knowledge revolution and its effect on that development; and,
3. The changing role of higher education also in that development.

The First Trend

The first trend has to do with recent changes in civil protection as this activity is labeled in Italy (or disaster management and crisis planning as the activity is known in many other societies). It is not always recognized that this is something that is rather new. Until the end of World War II, there was little organized effort to protect civilians against various kinds of threats and risks, especially those that eventuate in disasters. There were of course attempts to protect civilians against air and rocket attacks during

World War II. In fact, a case might be made that what civilians were subjected to in wartime led to the idea that maybe they could also be systematically and continuously protected against peacetime catastrophes. Nevertheless, while one can find sporadic and limited efforts at such protection in ancient China and Egypt, it has been only in the last half of the last century that one can see large scale attempts to institutionalize civil protection systems. Even local fire departments, which by the way were first organized in ancient Rome, have taken centuries to become traditional community social organizations. So in looking at the area of civil protection, we should always keep in mind we are dealing with a very young kind of social organization.

Moreover, this transition to societies setting up a civil protection system has almost everywhere been difficult and uneven. We have heard Italians complain about the numerous problems Italy has had in establishing and institutionalizing a civil protection system. It may be no consolation, but this seems to be a universal pattern.

In fact, right at this time, it would be very difficult for us to name any system anywhere where there has not been disagreements and problems as well as resistances to its development. In addition, of course, no system is as developed in actual fact as in principle they could be. As an example, let me note the situation in the United States, the society with which we are most familiar. The disaster management area in America is highly developed; in fact, at the national level, the Federal Emergency Management Agency (FEMA) is often cited elsewhere in the world as a model to be followed.

But the fact of the matter is that FEMA, although well organized along many lines, is still in the early stages of development along other lines. For instance, it has been only in the last five years or so that FEMA has seriously moved to emphasize mitigation, the notion that pre-impact measures and actions can and should be taken to reduce, minimize or perhaps even prevent the serious personal and material consequences of disasters. The tendency until very recently has been to be reactive to disasters after they have happened, instead of being proactive in trying ahead of time to prevent or minimize their negative consequences. And the new emphasis on mitigation has encountered various kinds of objections and resistances.

FEMA, a federal or national level agency also continues to have problems in integrating and coordinating its policies and programs with emergency management and disaster planning and operations at the state and local community levels. There is at times open conflict between the different levels and in many cases sharp disagreement about what should or should not be done. Some of this difficulty stems from the fact that the United States is a highly decentralized governmental system in many respects although not all. The federal government is limited in what it can directly impose on lower level governmental entities, although it can sometime indirectly use its power. More important in our view, is that the different governmental levels have different interests and values, have different degrees of knowledge and expertise, and have to respond to different political factors and factions. Actually we would argue that these social and organizational differences which complicate and hinder full integration of disaster management is almost certainly operative in all societies. But we will leave it up to you to decide to what extent this general observation about the problems generated by multiple social actors applies to Italian society.

Finally, as a last example, there has been a failure in the United States to take full advantage of the knowledge that already exists on the paths we need to follow to improve disaster planning and crisis management. About half a century of social science disaster studies has produced a large body of research-based knowledge about the social nature of disasters, how people behave in such crises, the kinds of situations that organizations have to face in such occasions, and generally the characteristics of, the conditions for and the consequences of disasters. We know a lot. But much of what is known is unknown or not used by the disaster management or civil protection area. Many of the problems have been studied extensively, such as how to get communities to better prepare for disasters. To be sure, there are some problems that are just starting to be researched, such as how to protect cultural properties. But overall, we already have much research-based knowledge that could be applied by operational and planning officials in the disaster management area. We have a very good starting base. What is lacking here is a matter of application, not basic understanding and knowledge in the first place.

So in general we are saying that the large scale development of civil

protection or disaster management systems is a new phenomenon and that in any given society there will always be problems in the institutionalization of the system.

The Second Trend

Let us turn now to the second general trend that is fundamentally affecting all human societies.

This is the information/knowledge revolution that has been generated by developments in computers and related technologies. This will in a profound way affect all areas of life. But for our purposes here, we are most interested in noting that the nature of disasters, their qualities and features, as well as planning and managing them is all being transformed by this revolution. As an extreme but nevertheless a true example, one of the results of this revolution is the creation of a new kind of potential disaster that never before existed, namely widespread computer system failures.

There is no real need to document that the computer-based information/knowledge revolution can and will lead to substantial improvement in disaster planning and managing. Few would dispute that. There is some disagreement on where the consequences will be most profound. For example, many seem to think that one of the major positive outcomes will be improved warning systems. Others, including myself are more inclined to think that instead that the effect will be greatest in the mitigation area. The difference of opinion stems from the belief of the latter observers that computer-based information/knowledge is less applicable where there are many contingencies and where decisions have to be made quickly in often very ambiguous social settings, such as the height of a disaster impact. But that there will be positive outcomes seem unchallengeable.

However, it is perhaps less recognized and accepted that there will be many negative outcomes that must be recognized and acknowledged. Let me note the following which we have detailed at length in our publications elsewhere (see, e.g., Quarantelli, "Problematical aspects of the information/communication revolution for disaster planning and research: Ten non-technical issues and questions." Disaster Prevention and

Management 6 (1997): 94-106), but which we will only state in one phrase or sentence here:

1) The probability that the “rich will become richer” in dealing with disasters, 2) The possibility that an overemphasized on technology will turn what is a “means” into an “end” in itself, 3) An inevitable information overload problem, 4) A likely reduction of learning from errors, 5) The greater and quicker diffusion of inappropriate disaster relevant information, 6) The exclusion of important nonverbal factors in human communication, 7) Intra and intergroup level communication may be made even more difficult, 8) The negative consequences of the probable acceleration of fads and fashions associated with computer use, 9) A lag in the development of the general social infrastructures and cultures necessary for the adequate functioning of any disaster relevant technology, and 10) The complications introduced by the fact that many of these technologies will be produced and controlled in the private sector.

Finally, it is important to keep in mind that we are not going to be saved or protected from disasters just because of the existence of or technological developments. The new technologies do provide an initial point from which to start better planning and managing. But improvements will mostly come out of changes in social values, attitudes and beliefs as well as modifications in social arrangements and structures. Put another way, the essence of the revolution is in the new and better information and knowledge that we have. That is what needed to be stressed, and eventually used.

Technology does not act on its own. It is created, processed and run by human beings and social organizations. If the people and groups involved do not change their behaviors and continue to act in traditional ways, there will be little benefit from the new technologies. It is vital that new ways of acting and behaving be developed to get the maximum benefits that are possible.

So generally we can say that there will be both positive and negative outcomes of the technological-based revolution in information/knowledge. But perhaps more important we should not assume that technology of any kind will itself and directly bring about improvements in disaster planning and managing. The latter will only occur if there are relevant changes in

human behavior and social actions.

The Third Trend

My third point has to do with the role of higher education in what is happening.

There is a need of some kind of leadership or at least a systematic effort to implement better civil protection and realistic use of the newer technologies. A possibility here, which has been used in many areas of life, is for relevant programs and training in institution of higher education. That is not the only path that can and should be used. But it is a major way of trying to turn research into practice, of attempting to make information and knowledge usable and useful.

But let us note a major problem with this path which is not often noted. It is that unless the training or educational activity is very good, it can lead to poor results.

There is sometime a tendency to ignore the limitations of any scientific or academic research finding in terms of its application in the everyday world. But research is one thing. Application of that research knowledge is another.

The problem here in our view is that there is a misunderstanding of how and in what way research results can be applied. Research findings have to be general. For example, studies indicate that human beings react remarkably well in the face of the extreme stress of a sudden impact of a natural or technological disaster. They can be expected not to break into panic flight, engage in antisocial behavior or abandon their work role to save family members. These are general observations resulting from numerous studies of how people react to such situations.

But does these well-established findings mean that no one ever breaks in panic flight, engages in looting behavior, or abandons their work role? Of course not. In fact, there are studies which indicate when panic flight is likely to occur, namely when an escape route still exists in the face of a perceived extreme threat to personal survival. Likewise, looting does sometime occur under very rare conditions and that behavior will show

certain characteristics. For example, studies show that in communities where on an everyday basis nothing is safe from being stolen, where petty crime is rampant and widespread, and where the agencies of social control such as the police are either very weak or inefficient or corrupt, it is not surprising to find that some looting occurs when there is a major disaster in that community. Basically there is simply an extension of everyday behavior into the disaster situation. Likewise, officials and others who see themselves as having responsibility for the safety of others are very unlikely to abandon their work role to take care of the survival of close family members. But in very rare instances work roles are abandoned when those in those positions do not really see themselves as having important roles in the organization. Thus, we have never found a case in our own field research of physicians or nurses or police officers abandoning their work role at the height of a crisis. But lower level personnel such as cleaning people or office clerks in hospitals or police departments who do not see themselves as having crucial roles may leave their jobs or not report for duty at the time of a disaster.

So while the research generalizations of the kind we have just used are valid, it is important to note also that the research usually also indicates when a different behavior is likely. Anyone trying to apply research findings must note the implicit if not explicit limitations of their applicability to all situations. In a good educational setting such limitations will be noted. But sometime when the program or courses are aimed at more applied or practical outcomes, there can be a tendency to simplify research findings. This can only be prevented by the careful development of a curriculum and the use only of first class teachers. Turning research findings of any kind into applied principles is not easy and requires considerable thought and effort.

Conclusion

In concluding let us note that this Forum in various ways will be touching on these three points: the development of civil protection, the opportunities offered by the new technologies, and the role of higher education in both matters. We have an opportunity here to look at these three social trends together. To the extent we are able to do so, we are taking a major step forward, especially for the Italian scene. So we look forward to what the speakers that follow will be saying about these trends.