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THE COMPARATIVE STUDY OF DISASTER: A SOCIAL ORGANIZATIONAL APPROACH

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Disasters can provide an exceptional opportunity for the comparative analysis of social systems. Disaster events are particularly useful for comparative purposes since they activate a variety of structures and processes with which the social system attempts to cope. In addition, disaster events allow for the observation of complex intergroup and interinstitutional relationships which in "normal times" usually emerge more slowly and segmentally. Such complexity is often slighted in most other comparative research since methodologies are used which place a premium on precision and abstraction rather than on the real complexities of social interrelationships. Disaster events are also useful for comparative purposes not only in understanding the more immediate adaptation of social systems but also because they are significant in understanding long-range social change.

These possibilities, of course, have not been achieved. A number of factors explain this. First of all, the volume of social scientific research on disaster is quite small. Secondly, people working in the area often have become involved in such research "opportunistically". That is, they do one study because of their geographical proximity to a disaster event (e.g., Belshaw, 1951, and Pundalik and Patwardhan, 1962). Such an opportunity is not likely to occur a second time in another context. Thirdly, few people have maintained continuous interest and capabilities in disaster research which would move toward comparative analysis. Fourthly, there are certain restraints of timing and predictability of disaster events which militate against a comparative research design. Fifthly, the majority of the disaster research has been done in the United States and this "dominance" provides the opportunity for internal comparisons but seldom for cross-cultural comparisons. There have been a few studies which made comparisons by contrasting their own research in one society with their knowledge and awareness of previous research in other societies. For example, Lessa (1964), in his study of the effects of a typhoon in Ulithi (a Pacific island), makes explicit reference to the disaster literature in the United States. Such references, however, are more often done to indicate the sources of ad hoc explanations for the results which were obtained rather than to indicate either continuities or comparisons with other studies (see also Anderson and Whitman, 1967, and Wettenhall and Power, 1969).

STUDIES WITH EXPLICIT COMPARISONS

Only two studies have involved explicit comparisons. Roy Clifford (1956) focused on the difference in reaction and response to a flood which affected two communities, one in Mexico and the other in Texas, the United

States. Clifford suggested that the Mexican community tended to share certain characteristics with other Latin American countries. Among these characteristics were (1) a greater emphasis on ascriptive criteria, such as age, sex, class, and kinship in ordering social relationships; (2) a greater emphasis on personalized relationships; and (3) a greater dependence on people rather than positions. Consequently, Clifford found that in the Mexican community there was a greater dependence on the kin group as a source of advice and help. There was a greater reluctance to accept "official" warnings and aid. There was a greater resistance to cooperative relationships among disaster-related agencies and a greater tendency to depend upon "heroic" personalized leadership rather than on "rational" authority and cooperation. Clifford suggested that these differences in the nature of the social relationships had important consequences for the disaster response in the respective countries. Some of these suggestions we will build upon in the analyses here.

The other study involving explicit comparisons was McLuckie (1970 and his article in this journal). He looked at disaster response in three different societies – Japan, Italy, and the United States. These three societies are very similar on a number of demographic, economic, and political variables. In addition, the three societies are subject to similar types of disaster events. The societies, however, do differ in the degree of political centralization – Japan being highly centralized, Italy less centralized, and the U.S. with the least centralization. In each society, McLuckie looked at three different disasters – one earthquake and two different floods. One flood and the earthquake occurred in cities and the other flood centered in a rural area. All of the areas studied were some distance from the national capitals.

By matching as many variables as possible, McLuckie was able to observe the consequences of political centralization on the performance of disaster tasks. There were indications, for example, that in the more centralized societies, preventative actions involving warning and evacuation were often delayed. Established patterns of decision making which traditionally involved "higher" authorities made it difficult for local officials to make decisions, even though they had a more realistic assessment of the situation. McLuckie also found that the response to disaster tasks which had immediate priority tended to involve less centralized decision making, regardless of the social structure. In addition, he found that the degree of centralization in decision making did vary along the time sequence of the disaster event. For example, the effect of centralization tended to be minimized in the initial stages when high priority tasks were involved but its importance was reasserted in the later stages of disaster activity.

Both the Clifford and McLuckie studies were unique attempts to overcome difficulties inherent in comparative research. Clifford's work was a good example of utilizing an opportunity for research. McLuckie attempted to match similar events and similar social contexts while allowing a theoretically important variable – political centralization – to vary. There are, of course, many other variables which cannot be controlled when creatively utilizing opportunities or even by judicious matching. This would suggest that other attempts to generate comparisons are necessary.

OTHER POSSIBILITIES FOR PSEUDO-COMPARISON

Certain gains in comparative knowledge might be gained by classifying the existing research according to certain categories which might not be explicit in the original research. For example, the available research does focus on rather consistent levels of behavior, either individual, group, organizational, or societal. Another form of classification might be to order the research according to the disaster tasks with which the behavior is associated –

e.g., medical care, security, search and rescue, etc. Also since disasters are events which take place over time, the behavior which occurs in various time phases could be used as a basis of classification, e.g., warning, rehabilitation, etc. Using these dimensions for classification, certain comparisons might be made even when studies appear to be quite dissimilar. For example, Young (1954) examined the role of the family in the evacuation process during the threat and pre-impact period of a flood in England. By contrast, Brahme and Gole (1967) looked at the role of municipal and other governmental agencies in Indian mass care during the immediate aftermath and in the establishment of rehousing during the longer-term rehabilitation after massive floods. Dynes, Haas, and Quarantelli (1964) examined the organizational response to a variety of disaster-related tasks within the post-impact period of a Japanese earthquake, and Quarantelli (1970) does this also for a dam overspill in Italy. Such attempts at classification could result in the gradual accumulation of research findings drawn from the comparative context. However, for knowledge to accumulate, such a format places a premium on the accidents of research overlap rather than on other strategies which could also provide more consistent comparisons.

COMPARISONS BASED ON SOCIAL ORGANIZATIONAL SIMILARITIES

Another type of comparison can be made by combining findings from existing research with extensive inference concerning the nature of social organization. When research is limited, there is a tendency to be overly impressed with differences, in particular cultural differences. In dealing with such unique events as disasters in so many different and "unusual" locations, there is a tendency for researchers to emphasize such differences and to slight similarities. Such a tendency can be reversed somewhat if the focus is on social structure, rather than cultural variations. The range of possible variations within social structure is restricted. Thus, it is possible to select variations of social structure within which to examine disaster-related responses. Here we attempt to illustrate the organizing possibilities of such a typology.

Three types of societies will be utilized here. While these types are based on actual societies, what can be derived from this classification can also be extended to a larger number of empirical societies which exemplify the types. In each of these three types of societies, we will assume as a constant a disaster agent which has relatively sudden onset and which has impact of a rather wide scope. The specific kind of disaster agent, e.g., flood, hurricane, earthquake, etc., is of little significance here since our focus will be on the social structural implications of the agent. In particular, the major concern here will be on the problems of response to the disaster agent. Response will be considered, not at the level of the psychological reactions of individual members, but at the level of the social organizational implications within these types of societies. Below is a brief description of the three different types and, in organizing the subsequent discussion, it is useful to attempt to state the central organizational problem which each of these three types of societies has to cope with subsequent to a disaster event.

Type I societies: Type I societies generally have a small population, an economic base dependent on food gathering, and a social structure centered around kin and clan relations. Such societies have a "fragile" social structure built on a tenuous ecological base. Such a base does not contain the resources necessary to adapt to the extensive disruption which disasters of wide scope can bring. The adaptation necessary for compensating for these lost resources necessitates modifications within the social structure which lead to further change within the society.

Type II societies: These societies are larger in population and have an economic base of

agriculture plus some initial industrialization. They are family and village based, within a newly emerging political state. In these societies, the traditional forms of social organization, the family and village, are limited in their potential in replacing resources which may be affected by disaster events. At the same time, the state is unable to mobilize its more superior resource potential in a way in which the "local" problems can be solved. Thus, there is poor articulation between the various levels of social organization within such societies.

Type III societies: These societies have a large population sustained by an urban industrial base. The structure of the state is quite elaborate, assuming many of the functions previously performed by the family, kin groups and village in the other two types of societies. In these societies, there is a broader ecological base and a greater complexity of social organization. Such complexity, however, creates its own problems. The articulation of the various elements which are necessary to sustain life requires complex forms of coordination particularly to accomplish tasks which occur infrequently. In such societies, the complexity of social organization is both the key to the response and the key to the problem for which the response is needed.

Each of the three types of societies will be discussed in greater detail below. While none of the existing studies has been explicitly conceptualized in the way just described, certain "findings" from these studies will be cited as they contribute support to the overall scheme.

Type I Societies

It would seem that disaster impact in Type I societies is exceptionally traumatic since such societies are based on such a tenuous ecological balance and possess such a "fragile" social structure. Such societies possess such a delicate relationship to the environment that when it is disturbed, the whole social and cultural structure is threatened. For example, if the economy is based on food gathering and if the food supply is disturbed, this has repercussions throughout the society. The kinship structure which provides protection from routine threats does not have the resources necessary to cope with such problems. It seems likely that if accurate historical records of such societies were available they would show that many such societies have ceased to exist as a result. Those that have survived have more than likely done so by migration. Nomadic peoples have been able to adapt to marginal resources as well as the periodic destruction of a certain portion of them by "natural" forces. Nomadism is most effective when there is free access of movement. But such movement has great risks when nearby lands are occupied and controlled by others. With the growth of the political state with its boundaries marking the scope of authority, such adaptation by migration has become less and less possible.

In addition to these limits, many Type I societies tend to be somewhat isolated and thus have few hinterland resources on which they can depend in the event of localized destruction. Three of the studies which have been done have focused on island societies. Widespread local destruction on these islands and on nearby islands created the conditions whereby assistance had to be sought from considerable distances (Firth, 1959, Schneider, 1957, and Lessa, 1964).

Since such societies lack the aid of sophisticated detection devices on which warning of threat could be based, there exists a considerable amount of folklore and folk knowledge about weather-related cues which are utilized in potential threat situations. This suggests that preventive responses are likely to be quite rational, given the low level of technology and the limited alternatives such peoples have for action.

In the immediate post-impact situation, some observers have suggested that the immediate response to damage in the society can be viewed

(by a Western observer) as being rather apathetic. Such "apathy" or "aimlessness" is more likely to be culturally patterned. Since the "normal" pre-disaster activity is rather leisurely, the disaster event does not change it significantly. Since the continuity of life does not depend on any one element, there is time to accomplish what needs to be done. In these societies there is not much "effort" expended in the normal day-to-day activities, and after disaster impact, the tasks created are not seen as constituting an "emergency" but as something which will be accomplished in "good" time. Spillius (1957) suggests that in the aftermath there is no significant increase in the amount of cooperative activity evidenced within the society. What little emerged was directed toward certain sacred obligations – i.e., repairing the temple area, or toward political ends. The impression one derives is that the patterns of social organization which existed prior to the disaster event persist in post-disaster behavior. Too, the behavioral responses to danger and to the immediate emergency period tend to be rational within that cultural context. While the response may be more passive than many Western observers believe necessary, a more "active" response tends to be inhibited by the limited resources which such societies have.

One of the more interesting possibilities is that disaster impact may elicit significant social change within Type I societies. Prior to impact, such societies have developed a social structure on the delicate ecological base. When this base is destroyed or seriously affected, there are serious implications for the social structure. The "solution" by migration is becoming less and less a viable option. This means that the society must become dependent on resources from outside. This usually means a greater dependence on market economics rather than the traditional economy. In some instances, this might mean the temporary migration of elements of the population, especially young males, to accept wage work at some other place. In other instances, it means the greater dependence of the members of the society on "outside" political authorities, usually neo-colonial ones.

This increase in economic dependence on "outside" forces in turn has political consequences. In such societies, the existing leadership pattern is usually one which places a premium on traditional skills. In the reorientation necessary to stabilize the post-disaster consequences, those individuals who have greater knowledge of the "outside" world and who have skills valued by the "outside" world tend to assume leadership roles. Such individuals, in the acquisition of the knowledge and skills which make them valuable now, have often been previously considered "outsiders" to the leadership structure. But the old leadership structure no longer has the instrumental skills necessary to effect the necessary adaptation, and new leaders emerge.

In addition to the internal structural changes which evolve, there is also some indication that disaster impact facilitates in other ways rather rapid modernization. Since change can only go one way, there are suggestions in the literature that disasters provide a context in which new innovations can be introduced in a rapid fashion. Spillius (1957) reported the rather rapid adoption of certain items of clothing, based on the rationale of being useful in the post-disaster period. Shoes, for example, were justified on the basis of protection from dangerous debris which had been blown up by the typhoon. In addition, certain types of new materials began to be used in housing "repair". This impetus for change in these situations is in contrast with what happens in other types of societies. Perhaps the basis for change is something as follows: the fewer the societal resources, the greater the destructive potential of any disaster event. Given the greater destructive potential, the magnitude of the loss within such a society necessitates the greater utilization of "outside" resources. The necessity, then, to utilize extensive outside resources moves the society toward change. Since the previous

cultural and social adaptation has evolved over a long period of time and is based on these delimited resources, the degree of flexibility inherent in the adaptation is not sufficient to cope with any significant, long-term modification in the base. Thus, new cultural elements have to be introduced and used to make this continuum adaptation. If they are introduced, they will constitute significant social and cultural change. If they are not, the continued viability of such a society is problematic.

One temporary adaptation which such societies can make is the development of a disaster subculture (Wenger and Weller, 1973). If a disaster subculture is interpreted as a set of attitudes and values toward disaster impact, these societies are characterized by such. On the other hand, societies with such limited resources seldom extend their disaster subculture to include organizational and technological adaptations. Because of this, it leaves them vulnerable and subject to the possibilities of change induced by their necessary dependence on outside resources.

Type II Societies

As we have already suggested, there is a lack of articulation between the major social units within such societies – the family, extended kin groups, and the village – and the major source of power and resources, the central government. In such societies, the village has functioned as the historic center of social organization. However, these villages are being increasingly caught up in the linkages to the national government. The ties to the national government may, however, be more political and emotional than administrative. Often such societies lack the organizational ties which link the thousands of villages and their problems to the national level administration.

In such societies, a disaster agent may affect the resource base of one segment. While the "total" society may possess sufficient resources to cope with the problem, there are a number of barriers which intervene. In such countries, local governmental agencies are likely to be relatively powerless and ineffective. In the development of the national government, the bureaucratic structure which has developed to overcome kinship bias and pressure is so rigid that it is ineffective in dealing with non-traditional problems. Local officials have little autonomy in making decisions. Their primary functions are to follow rules which are made for them at the national level and which allow no exception for local conditions. If the problems do become standardized and routinized, such bureaucracies may be able to carry out longer-term rehabilitation tasks with efficiency but, in the immediate post-impact period, such structures seem to be singularly ineffective. In addition, there are limited possibilities for the assumption of local governmental responsibilities by some other source. Some disaster studies, especially Prince (1920), have described how "latent" power structures, usually a business elite, within given communities, emerge to play a significant role in the aftermath of disaster, particularly in those situations where local government proves to be ineffective. In Type II societies, however, the other institutional sectors, including the economic sector, seldom contain the personnel or resources to be able to accomplish such a substitution. In other words, there is structural "weakness" across the various institutional sectors.

There seem to be two rather common "solutions" to this problem of the weakness of local structure and the lack of articulation with the national level. The first solution is the military one. In Type II societies, the army is often the major governmental unit which has resources, mobility, and flexibility. In addition, in kin-dominated societies, the military tends to be the closest approximation to a rational bureaucratic structure within the society. As such, the military can move in, organize tasks and allocate resources. It is our impression that questions of authority in such

situations are seldom raised since the military act as a representative of the national government. The second solution, which sometimes can be combined with the first, is the possibility that a charismatic leader or a paternalistic one can reorient the existing structure so that it becomes relatively effective. This often is achieved by the physical presence of the charismatic leader in the disaster area for a period of time during which he delegates personal responsibility and assigns tasks to particular governmental units. These units then can function more effectively with the derived authority given to them. Clifford (1956) describes a similar situation in Mexico when the effectiveness of organization was enhanced by the actions of paternalistic leadership. This suggests that when rational bureaucratic organization is not well institutionalized within a society it can be "supplemented" by charismatic leaders to make it more effective.

The relative ineffectiveness of governmental structures has other consequences within Type II societies. Without the technological base available within Type III societies, such as widespread availability of various media, warning becomes more difficult. In addition, "official" warnings are likely to be less believable since governmental sources are often given little credibility. In addition, the issuance of "official" warnings is likely to involve a process in which various governmental agencies are likely to attempt to "share" responsibility so that later they can share the "blame". Such equivocation, delays in the issuance of warning, the lack of credibility given to such warnings, and the limited means for rapid transmission, combine to make the warning process ineffective.

The evidence suggests that, in the response to an emergency such as disaster impact, members of Type II societies tend to behave in the context of their social roles. The primary acting unit is the family and the exercise of authority tends to occur within the family context. Carroll and Parco (1966) reported that, subsequent to a volcanic eruption in the Philippines, over 90 percent evacuated as family units. In addition, these units often absorbed unattached persons as a form of mutual aid. Only one percent evacuated as individuals. These actions were primarily self-initiated and only 11 percent had any contact with public authorities. In addition, most of the family units were able to make their own arrangements for emergency shelter, although it was estimated that 15 percent did have to depend on governmental shelters. The extent of the kin assistance would vary, of course, with the magnitude of disaster impact and with the location and resources of other family members. Brahme and Gole (1967) reported that in a flood in an urban area in India, lower class families did not receive much assistance since members of the kin group within the area were similarly affected while other members were too far away to be of assistance. In any case, behavior immediately prior to impact and in the emergency period tends to occur within the context of conventional roles, particularly family roles. The images which are sometimes drawn of widespread irrational behavior or of apathetic dependent behavior do not seem to be revealed in the research literature.

In rather sharp contrast to Type I societies, disasters in Type II societies do not seem to be significantly related to any long-term social changes. Patterns of behavior which have developed over a long period at the family and village level are not likely to be significantly modified subsequent to disaster impact. In addition, the resources and the organizational capacity of the national government are tenuous enough so that the additional resources and their allocation are likely to have significant effect only in the immediate restoration. However, in such societies, it is common to see the handling of disasters become a political issue. Often parties out of power seize on the difficulties of coping with disasters as a major criticism of governments in power. Such

criticisms are more likely to reveal the nature of politics within the country than the level of effectiveness of the governments in power. If the parties out of power do gain power, they will often be subjected to the same types of criticism in subsequent disasters without any significant change in the performance levels of units within the governmental structure.

Type III Societies

One might suggest that in Type II societies, the major difficulties emerge from the "gaps" within the social structure which make the reallocation of some resources difficult. In Type III societies, the major problem is in the coordination of the parts of a complex social structure in attempting to cope with "non-routine" problems. The proliferation of structures as a result of specialization within such societies means that greater attention has to be given to the problem of coordinating the various parts essential for a disaster response. The family and the village continue to exist, but families in urban areas are now "assisted" in day-to-day living by schools, hospitals, stores, police departments, sanitation departments, etc. These organizations, of necessity, become involved in disaster activities. Furthermore, disaster creates problems, such as search and rescue or mass shelter, which are "unusual" in the sense that existing structures seldom consider these as institutionalized responsibilities. Added to this complexity of social organization, in Type III societies another social unit has been "added" which increases the complexity. This is the emergence of the "individual" as distinct from the family. This necessitates thinking of masses of individuals as well as constellations of family units.

While in other types of societies, the absolute lack of resources may be significant, the productive capacity of Type III societies is such that adequate resources are most likely available. In fact, a much more likely problem in areas of disaster impact is controlling the acquisition of irrelevant resources and preventing the overabundance of resources. A number of researchers have illustrated the problems created by convergence. Convergence is the concentration of goods, communication, and personnel in the immediate impact area. Usually these resources are already available within the impact area so that any addition simply causes added problems rather than solving existing ones.

The major problems in Type III societies center around the allocation of resources and the determination of the priority of tasks. The reason that this becomes problematic is that in most political units which may be affected by disaster impact, there is usually no overall decision making process which incorporates the elements which have the resources and capabilities to cope with the problems which disasters create.

One by-product of complex differentiation within these societies is the delimitation of responsibility and an increase in individual organizational autonomy. In disaster, however, interdependence among the various parts becomes evident again. The necessity for the extensive involvement of various organized parts of the political units and the fact of their interdependence necessitates a greater degree of coordination than has previously been exercised. The involvement of a wide range of organizations brings together those of quite divergent bases of authority and jurisdiction. It is likely to involve local, state, regional, and national levels. It is likely to involve governmental and private organizations. It is also likely to involve organizations with competing or overlapping domains. In addition, there may be "new" tasks created by disaster impact which no organization readily accepts as a part of its current domain. In other words, there may be "gaps" in the structure. These gaps may have to be filled by the development of emergent groups, which subsequently create additional problems for coordination.

Given the complexity of involvement and the high probability that many of the involved parts have had little experience together in

previous situations, coordination then becomes problematic and takes time to develop. The development of coordination can be facilitated in a number of ways. Repetitive experience with similar tasks provides a solid base upon which to start. Political centralization can resolve many potential jurisdictional and level problems. On the other hand, political centralization may delay the speed of decisions since time is necessary to accumulate evidence to be used in higher level decisions. In addition, this reduces the flexibility of those at the disaster site in taking into account localized conditions. It seems clear that no particular political system solves these problems easily. On the other hand, there are suggestions that flexible governmental administration is particularly effective since it allows local level officials some degree of autonomy in decision making and in the initiation of action.

The greater individualism within Type III societies creates a new set of problems. For example, the usual separation of job, school, and housing often results in family members being separated when disaster impact occurs. In those situations where the job is important in the emergency response, this can pose problems of role conflict, pitting occupational against family obligations. In addition, there are in Type III societies a larger number of persons not living in family units. These persons, thus, are removed from mutual assistance within family units. However, families in Type III societies usually have more resources, both of an interpersonal and of a material nature, which reduce their dependence on other agencies. The kin group continues to play a key role in the assessment of danger and of the advisability of evacuation. In addition, most individuals depend on family groups for shelter and accept alternative arrangements by "official" groups as a last resort.

The greater material resources and technological sophistication which are available within Type III societies have consequences of several different kinds. In certain communities a disaster subculture may develop. In addition to the values and attitudes which exist in other types of societies to cope with the consequences of disaster, in Type III societies planning can also be developed which facilitates the mobilization of organization and technology for a more rational response. In addition, the advanced technology can provide many useful tools for mobilizing a response, such as the availability of media which can reach mass audiences and deliver warning messages. On the other hand, a complex technology has its own vulnerabilities. For example, many organizations which are necessarily involved in emergency actions may be operationally dependent upon the continuity of certain technological necessities. Hospitals may be dependent on a constant power supply in order to cope with injuries generated by the disaster agent. Any loss of power will then lower operational capacities of these organizations. Too, the widespread dependence on technology in Type III societies creates a climate whereby problems are often "solved" by the addition of new technology. Technology thus becomes a panacea. If a communication problem exists, it is more likely to be remedied by the addition of a telephone than by the analysis of the nature and the destination of the message. Because of this dependence, disasters are an impetus to continued technological development.

In general, however, in Type III societies, disasters seem to create little change. At times, some groups that have emerged during the emergency to cope with a specific problem may be institutionalized. Within existing organizations, there may be some post-disaster continuation of forms of organizational adaptation initiated in the emergency period. In certain situations, the volume of resources which were brought to bear on disaster impact may be sufficient to provide impetus to economic growth. But overall, the amount and degree of change within Type III societies is minimal.

In addition to the lack of change, the emergence of political criticism is also limited. The more effective function of the administrative bureaucracy in the disaster response tends to limit the possibilities for criticism. In addition, the less dependence on personalized leadership in Type III societies and the greater elaboration of bureaucratized and rationalized forms of social organization tend to deflect criticism.

The problems of the lack of articulation between the various parts of a complex society is somewhat confined to the immediate post-impact period. It is in this period that the complexity of the society is most evident and, in addition, the scope and variety of tasks which have to be solved by organizations is greatest. In most Type III societies, "small emergencies" such as fires, traffic accidents, and crime, are an integral part of everyday life. Not only do organizations such as fire departments and hospitals develop to cope with these "normal" emergencies, but they develop types of understanding with each other which facilitate cooperation. A major increase in the scope of emergency, such as is created by a diffuse disaster, of necessity brings a more extensive involvement which goes beyond the existing understandings. On the other hand, in the longer-term recovery period, time and the reduction of the pressures of immediate emergency problems allow for the development of cooperative arrangements. This suggests then that the most problematic period from the social organizational vantage point in disaster response is the immediate post-impact period.

SUMMARY

The existing research dealing with the response to disasters has been viewed in terms of the structural problems which are experienced in three different types of societies. Here, disasters have been seen as presenting demands for "solution" by a delimited number of types of social systems. In Type I societies, a very fragile social structure is erected on a tenuous ecological base. The effects of disasters can often be very disruptive of existing social relationships. Because these disruptions are often impossible to "repair," adaptation and change within the structure is often the only alternative. In Type II societies, the structural problem resides in the poor articulation between the family and village structure where disaster impact is felt and the superior resources of the national, political, and governmental structure. Often the political units find it difficult to mobilize their superior resources in a fashion which facilitates coping with the disaster at the local level. In Type III societies, there is the growth of structural complexity, involving the elaboration of governmental structure, the development of voluntary associations, and the emergence of individualism. Emergent groups often appear in response to "gaps" within the structure. There is complexity in the bases of authority for various elements. All of this provided the base for problems of coordination, particularly in the immediate post-impact period. In general, coordination mechanisms are adequate in the threat and rehabilitation periods but they have not been developed to cope with the complexities of the immediate post-impact period.

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