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# Community Emergency Planning: False Assumptions and Inappropriate Analogies*

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*Community emergency planning had its roots in military analogies which viewed emergencies as extensions of "enemy attack" scenarios. Such thinking was embedded in early structural arrangements and was generalized as the appropriate normative model for all emergencies. This model viewed emergencies as conditions of social chaos which could be rectified by command and control. It is argued here that such a view is inadequate based on a knowledge of behavior in emergencies and the model is dysfunctional for planning. A more adequate model is presented, based on conditions of continuity, coordination and cooperation. This problem solving model, based on research rather than military analogies, provides a more adequate set of assumptions as the basis for planning. However, legislative and technological "improvements" often make emergency planning more rigid and increasingly inadequate.*

Discussions of emergency planning usually leave the conceptual origins of such efforts unexamined. Such planning effort oriented toward anticipating a situation for which the planner has had little or no experience. With limited experience, planners often base their planning on conventional wisdom. Conventional wisdom, however, is not the same as knowledge, since such wisdom usually treats any nonconforming experience as idiosyncratic and irrelevant.

The intent here is to identify certain problematic assumptions which are embedded in the conventional planning model used for emergencies. These assumptions center around notions about what constitutes an emergency, what are the usual behavioral responses to emergencies and what are the organizational requirements for responding to emergencies. The context of this discussion is embedded in observations derived from a research tradition based on community "disasters," much of which has focused on the nature and complexity of the emergency response. That research tradition

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has evolved over the last 25 years, primarily, but not exclusively, in the United States and has included diverse disaster occasions, including both "natural" and "technological" incidents (Drabek 1986). Part of that research tradition involves the examination of planning efforts compared with the implementation of those efforts in patterning the actual emergency response (Anderson 1969).

The discussion will focus on what will be identified as the dominant planning model. The model is dominant because it is universal; planning efforts around the world are based on it (Dynes 1983). The reasons for its widespread use are explained less by its utility than by rather similar patterns of origin, adoption and implementation of the model. In addition, the dominant model has been used as a point of reference not only for the "community disaster" but has been also used for risky technologies (Quarantelli and Dynes 1977).

## Background of the Dominant Planning Model: Command and Control

For convenience, the dominant model is described here as the "military" model of emergency planning to indicate its primary roots. Fundamental assumptions can be understood in terms of the "triple C's." The first "C" points to the assumption that an emergency is characterized by CHAOS and the other two "C's" suggest that the chaos can only be eliminated by COMMAND and CONTROL. The roots of that formulation are derived from long standing ideas about the capacity of military organizations to deal effectively with threatening situations. That notion has also become deeply embedded in "civilian" organizations which may deal with emergencies (Dynes and Quarantelli 1981). The assumption is that "certain" organizational forms should be para-military in their structure in order to deal with emergencies or that they must move away from their "inept civilian" forms toward a military model in order to cope with emergencies. Those assumptions are plausible if one understands the evolutionary patterns which undergirded the development of thinking about emergency planning. A brief look at the development of emergency planning in the U.S. underscores the point.

Coming out of World War II experience and in the context of a new Cold War, the first comprehensive legislation in the United States to deal with emergency planning was the Federal Civil Defense Act of 1950. That legislation was intended "to provide a system of civil defense for the protection of life and property in the United States." While the legislation indicated that the organizational structure to be developed for civil defense



*could* be used to provide relief and assistance by disasters other than those caused by enemy attack, the prime focus was on "enemy attack" and the development of such a civil defense was assigned to the Secretary of Defense. The possibility for using "civil defense" to apply the civilian emergencies was institutionalized in a doctrine of "dual use" but that duality was always framed in terms of the application of "military" planning to civilian emergencies. The Secretary of Defense then assigned the emergency responsibilities to an agency called the Defense Civil Preparedness Agency. What followed as a result of the legislation was a burgeoning of "civil defense" activities which emphasized emergency planning at the Federal, State and local levels. This "new" administrative initiative coincided with the demobilization period from World War II and the new civilian agencies assumed that the qualification for the responsibilities for civil defense/emergency planning would best be found among ex-military. Since most local communities were unsure of what emergency planning might be and since it was cast in terms of "civil defense," previous military experience was "obvious" as the most critical and perhaps the only qualification for emergency planners.

Over the longer haul, however, the concept of dual use produced considerable organizational tension. When the possibilities of enemy attack seemed to decline, many local civil defense officials became more involved in local emergencies in their communities and they used their "military" assumptions in planning for these other emergencies. National priorities were still centered on issues of national security.

Of course, the legislative evolution moved further away from "enemy attack" in the Disaster Relief Act of 1970. Later, there was a major change during the Carter Administration when various disparate organization in the government were merged into the Federal Emergency Management Agency. While this name change was significant, it did not necessarily end the impact of military analogies. While the term "management" was used, the way to "manage" an emergency was by the command and control model. In obtaining funds from Congress and other legislative bodies, it was more effective to argue the "enemy attack" scenario. When planning was done at local levels, it was usually turned over to police and fire departments, organizations whose authority and rank structures cast planning in terms of command and control. The model assumptions were so well institutionalized that when new emergency situations arose, such as fixed site nuclear facilities as well as the handling of hazardous and toxic materials, the same assumptions and analogies were applied (Wenger et al. 1990).

Perhaps it is important to mention that the dominant planning model with its emphasis on "command" was implicitly undercut by the structural

arrangements which evolved to support it. In the first place, the institutionalization in the United States emphasized various types of partnership arrangements between local, state and federal governments. This created what Weick (1976) termed a "loosely coupled organizational system" in which authority at each level has a degree of autonomy and, thus, can set limits on how that level can relate to other levels. In addition, the Federal Emergency Management Agency was designed to coordinate the Federal response and to encourage state and local planning, creating what May and Williams (1986) called a pattern of "shared governance." That pattern of institutionalization is hardly one which can and would support command and control. Drabek (1986, p. 86) has commented that "Command and Control are simply the wrong concepts for the system of shared governance that comprises the emergency management system. Coordination and supervision are far more appropriate." While these structural incompatibilities are important, the primary concern here is with the assumptions which are made in the dominant model about the nature of emergency behavior.

## Assumptions Embedded in the Dominant Model

Emergency planning is, in effect, a guide for behavior appropriate to certain situations (Drabek 1990). Thus, it has little to do with the "agent" which may have created the situation. It is not based on geological or atmospheric happenings or on hazardous industrial processes. Emergency planning is based on assumptions about the social characteristics of the emergency period and on the nature and direction of the appropriate responses to the characteristics of that period. The dominant model is based, then, on several interrelated assumptions. First, that the emergency period is characterized by a sharp distinction from the pre-emergency period. While the pre-emergency period can be characterized by some notion of "normalcy," the emergency period is marked off by manifestations of social chaos. This chaos is signaled by considerable irrational social behavior - panic is a term used frequently - and such personal disorganization is manifested in wide spread episodes of anti-social behavior. Such "irrationality" develops because the traditional social control mechanisms have lost their effectiveness. This social disorganization is seen also as a result of the lack in effectiveness of pre-emergency social organization. The initial assumption, then, seems to be that emergencies create a significant disjuncture in social life, which requires extraordinary measures to put back in place. Those extraordinary measures are based on two other interrelated assumptions. Since the "problem" is found in the "weakness" of individuals and of social structure, emergency planning should be directed to establishing a "command" over the chaos and to "regain control" over the disorganization of individuals. Only when such command and control is established, can social life be returned to normalcy and thus the emergency will be over. Those interrelated assumptions are the philosophical underpinnings of much current emergency planning.



## Consequences of the Dominant Model for Planning

Going back to the central themes of the dominant planning model, the assumption that an emergency is a drastically different social situation than is "normal" time is critical. In part, this assumption comes from the enemy attack scenario and also implies, like bombing raids, that emergencies are easy to recognize. That, in fact, is not the case, even with agents such as earthquakes, which have sudden onset. To distinguish between a hard tremor in a particular location which leaves minimum damage, and diffuse and extensive damage over a widespread area requires the collection and collation of considerable information. Also, a collective decision making structure must conclude "something" happened which makes it necessary to declare an "emergency" (Drabek 1985).

The fact that there are slowly developing emergencies has, of course, been recognized and sometimes this notion is reflected in defining emergencies in stage terms, such as alert, in - plant emergency, community emergency, etc. While these distinctions have utility in recognizing gradients, attention is often fixated on labeling stages rather than giving full attention to the gradual unfolding of the emergency.

One consequence of the conventional wisdom that emergencies are easily identifiable and characterized by chaos and the fact that many emergencies develop subtly and over a long period of time is that ex post facto explanations of the "cause" of the emergency is the "official" withholding of information by some "authority." Because emergencies are "obvious," such monitoring agencies are expected to "see" them. This unanticipated consequence emerged in Three Mile Island when it was widely assumed that the plant *should* have known there was an emergency and withheld that information. A later variant of such explanations developed in post accident inquiries when it was assumed that operators "missed" the emergency because one dial was covered by a tag. Such inferences are based on the assumption that emergencies are "obvious" and if not detected, are a consequence of malfeasance or deceit.

A more adequate interpretation is that the difference between emergencies and non-emergencies are often quite slight, so they are not necessarily "obvious." There is a generalized tendency to normalize events and not to

"see" clues as significant, except in hindsight. The problem of defining an emergency is a complex social process, requiring information about the status of the present compared with the condition of the past and making inferences about the consequences of those discrepancies. Dials are only information sources, not conclusive determinants of a final evaluation. Establishing criteria for emergencies in planning documents may have utility but the determination of a state of emergency are not easily recognized as the concept of "chaos" suggests.

The assumption of chaos has other derivate implications which tend to justify command and control planning. There is the implication that ordinary (civilian) institutions are incapable of dealing with the emergency, because such structures were fragile and the emergency increases ineffectiveness. This leads to four planning conclusions. First, that local institutions will need to be supplemented or replaced by "outside" organizations, most preferably by military organizations. Second, those local entities which can function effectively are paramilitary organizations, such as police and fire. Third, those organizations that hope to be effective in an emergency need to change their structure toward a para-military form. Fourth, that traditional forms of pre-emergency social organization (families, voluntary organizations) are irrelevant to emergency actions.

Supporting the conclusion of the lack of viability of pre-emergency social organization is the idea that emergencies have a disorganizing effect upon individuals which make it almost impossible for them to mobilize effective personal action. Emergency workers are *assumed* to be afflicted by a number of transformations - they panic; they freeze; they become anti-social; they become traumatized; they become self centered and thus cannot be counted on for selfless action. The persistence of such myths reinforce other aspects of the command and control model. First, if persons are so disorganized, this suggests that strong authority structures have to be created. Second, it is assumed that considerable attention must be given in the emergency plan to controlling irrational and antisocial behavior. Third, significant resource allocation must be made by para-military organizations to control such behavior. Fourth, because of widespread traumatization, individuals are not likely to be able to perform effectively in most occupational roles. Exceptions to these traumas are those in paramilitary organizations. Fifth, since individual disorganization is expected, pre-emergency planning needs to emphasize rigid rules, otherwise people will not exhibit appropriate behavior.

The predication of extreme effects on both individuals and on social organization provides "logical" justification for organizations which are assumed to be most effective in emergencies the military model. Certain



themes dominate the planning effort since it is assumed that either authority will break down or be weakened. This preoccupation with "command" leads in certain directions. First, a great deal of time and effort is given in the planning document to specifying authority relationships. Generally, those specifications depart from the pre-emergency patterns of authority because it is assumed that those will be inadequate. Second, organizations writing emergency plans give themselves greater authority than they are accorded in the plans of others. Third, plans usually assume that authority is unidimensional in emergencies, even while recognizing that pre-emergency authority is multidimensional. Fourth, the assumption is made that decision making, and authority needs to be centralized. Fifth, because of the assumptions of the chaos, there is a tendency to over-plan and to over-detail. Sixth, spontaneous "unplanned" behavior is evaluated as being dysfunctional, misdirected and harmful. Seventh, because of the assumption of the weakness of pre-disaster social structure, there is an emphasis on creative special emergency-specific organizational structures and to detail lines of communication, reporting, and authority patterns. Thus, a plan, by its very nature, is unfamiliar when it is implemented. It is also unreal. Eighth, there is the assumption that the most important form of communication is "down" the authority structure. Since those at the top of the authority structure "know" what must be done, the major need for communication is to provide "official" instructions to an uninformed and passive population. So a premium is given to establishing means of issuing orders at the expense of gathering information about the nature of the emergency.

Also, implicit in the dominant model is the notion that extraordinary efforts have to be made to maintain social control. This has other consequences. First, there is attention given to anticipate and to "control" anti-social behavior. There is a widespread belief, usually reinforced by media coverage, that anti-social behavior is not only common but also threatening to the re-establishment of "normalcy." Discussions of needed security forces or for "martial" law result from this image. Second, there is a reluctance to trust conventional means of communication in an emergency. There is the implication that people cannot be trusted to obtain "correct" information and thus effort is needed to produce and distribute "official" information. Third, there is the assumption that victims are passive and cannot "help" themselves. So a major part of the emergency action is in solving problems for "victims." It is a rather paternalistic view of victims who need "authorities" to be decision makers. Fourth, there is a distrust of independent action by volunteers or by emergent groups, not anticipated in the pre-emergency planning. Spontaneous actions are, by definition, beyond control and thus are irrelevant or disruptive. For example, there is the notion

that persons should not act until officially notified. In the TMI accident, there was a common interpretation that those who left the area after the governor's confused evacuation order "evacuated" but those who left before were *weak willed.*

One other implication about social control is a preoccupation with the possible loss of workers in emergency organizations. The hypothesized losses would stem from the inability of employees to maintain their occupational responsibilities in the face of threat. Part of this issue was conceptualized in term of role conflict and abandonment. The idea is that employees would abandon their emergency duties and such losses would seriously hamper organizational functioning. In the command and control model, this is assumed to be a real and serious problem. A partial solution of this "problem" in the command and control model is achieved by depending, as much as possible, on para-military organizations since they have greater experience in dealing with people who might leave their "post." In general, the command and control model is pre-occupied with the potential loss of manpower in emergency organizations since that model assumes the emergency is disorganizing and lowers the capacities and motivations of much of the "civilian" population.

There are other implications of the implementation of the dominant emergency planning model but, in general, the model has the following consequences.

1. It assumes social chaos and dramatic disjunctures during the emergency.
2. It assumes the reduced capacity of individuals and social structure to cope.
3. It creates artificial social structures to deal with that reduced capacity.
4. It expresses a deep distrust of individuals and structures to make intelligent decision in emergencies.
5. It places responsibility in a top down authority structure to make the right decisions and to communicate those "right" decisions in official information to insure action.
6. It creates a closed system intended to overcome the inherent weakness of "civil" society to deal with important emergencies.



## Toward a More Adequate Model of Emergency Planning: Problem Solving

A more realistic set of assumptions can be constructed on a quite different view of "emergencies" than those which derived from the analogy of "enemy attack." Such a model would assume:

1. That emergencies may create some degree of confusion and disorganization at the level of routine organizational patterns but to describe that as social chaos is incorrect.
2. That emergencies do not reduce the capacities of individuals or social structures to cope. They may present new and unexpected problems to solve.
3. That existing social structure is the most effective way to solve those problems. To create an artificial emergency - specific authority structure is neither possible nor effective.
4. That planning efforts should be build around the capacity of social units to make rational and informed decisions. These social units need to be seen as resources for problem solving, rather than as the problems themselves.
5. That an emergency by its very nature is characterized by decentralized and pluralistic decision making, so autonomy of decision making should be valued, rather than the centralization of authority.
6. That an open system be created in which the premium is placed on flexibility and initiative among the various social units, then, and those efforts are coordinated. The goals should be oriented toward problem solving, rather than avoiding chaos.

It would be possible to argue that, with no planning, social units would likely evolve a more adequate effort in emergency response than they would burdened by the assumptions inherent in the command and control model. But the choice is not between no planning and innate planning. Planning can be structured in ways so as to reinforce the strengths of the social unit in solving the problems which emergencies create. The place to start is to make the simple observation that all social units, communities, plants, families, etc. are problem solving units in "normal" times. There are certain tasks and goals which these units have and they develop ways of allocating resources. Emergencies create new, unanticipated problems and, in some instances, they can create "more" problems that the social unit can deal period of time. Too, emergencies create problems of high priority, in the sense that needs relating to health and safety need to be addressed more rapidly and with greater certainty than they are in "normal" times. Thus, a

major improvement in conceptualizing emergency planning is to cast it in terms of "problem" solving rather than as an attempt to hold fragile social units together by the imposition of authority.

For additional characteristics of the problem solving model, one can point to more realistic assumptions about emergency behavior. Instead of chaos, the emphasis should be on *continuity*, Instead of command, the emphasis should be on *coordination*. Instead of control, the emphasis with in should be on *cooperation*.

## Continuity

The idea suggests that the best predictor of behavior in emergencies is behavior prior to the emergency. Emergencies do not make sinners out of saints, not Jekyls out of Hydes. Regardless of how extensive the emergency, social systems will still be relatively intact. Since people behave in terms of certain routines prior to the emergency, those routines should be utilized in planning emergency actions. For example, warning messages should be stated in a vocabulary which is understandable to those who live in the community. Evacuation routes should be planned along usual traffic patterns. In any type of emergency actions, existing social units should be utilized as much as possible and artificially created emergency units should be minimized.

With the assumption of the continuity of behavior, this suggests that populations affected by the emergency will not be stunned, passive and/or irresponsible and that they will be very capable of making decisions about their own welfare. While the command and control model tends to pre-empt decision making for "victims," the problem solving model makes the assumption that those populations have not lost their decision making capacity and concentrates on developing ways of enhancing collective decision making process.

## Coordination

The best predictor of emergency authority will not be to create an artificial authority structure but, following the principles of continuity, the "pre-emergency authority" will carry over and will serve as a base for the emergency authority. Using the structure of the pre-emergency community as a base, there are a number of mechanisms which can develop coordination. Coordination can be enhanced through common planning and rehearsal activities, the establishment of personal contacts, the development of liaison activities and the establishment of shared facilities for emergency operations, such as the development of emergency operating centers. In



effect, the core of emergency planning should be directed toward mechanisms, techniques and facilities which promote interorganizational coordination and common decision making, rather than in hypothetically establishing the "proper" authority relationships. Authority relationships will be sorted out in the pursuit of common problems. The basis of emergency authority will be very complex - some will be based on resources, some on knowledge, some on competence. To specify this prior to an emergency is a waste of time because the exact patterns are not likely to be predictable. The best prediction available comes from the continuity of authority which comes from the pre-emergency relationships. That is the base on which one must start. Authority may change at different times during the emergency. The pre-emergency patterns will not be carried over with exactness. But coordination can maintain flexibility so that new elements can be accommodated when needed.

Emergencies lead to the emergence of new demands and problems. New problems lead to new activities and collectivities i.e. emergent phenomena. Those responding have to operate with a great deal of uncertainty about the real demands and capabilities during the crisis and there is often both a feeling and a need for great urgency to act. One consequence of this is that a variety of organized behaviors emerge in emergency occasions. In understanding that variety, several researchers have suggested that by cross tabulating two dimensions tasks and norms - a four fold typology depicting organizational involvement is instructive (See Dynes 1979; Stallings 1978; Drabek 1986). Emergency tasks are either regular or non-regular; emergency norms are either old or new. Thus four types of organized behavioral responses can be identified (Dynes and Aguirre 1979):

1. Established (regular, old)
2. Expanding (regular, new)
3. Extending (nonregular, old)
4. Emergent (nonregular, new)

Planning which assumes that emergency problems can be handled solely by established organizations, are working with a myopic view of the emergency period. There are other organizations which expand and those which extend their activities to emergency tasks. In addition, there are emergent groups which come into being. Realistic planning efforts need to take a strategic view of how emergency related problems might be handled.

If a planning effort is organized around coordination, it is important to clearly identify the focus of planning activities. This guidance can be derived from a distinction between *agent* generated demands and *response* generated demands. The difference can best be indicated by an illustration.

Let us assume that an earthquake produced x number dead and x number injured over a wide geographical area. This dead and injured can be considered agent demands on the emergency system. On the other hand, in order to deal with those demands, the emergency system needs rapid and accurate communication; ways to mobilize and utilize human resources in search and rescue have to be coordinated with existing medical facilities, etc. In effect, there are certain demands which are made on the emergency system created by the *response itself*. The suggestion here is that emergency planning should to focus on response generated demands rather than on agent generated demands. The problem solving model can give primary planning attention to the *process* of solving, rather than on possible agent demands. That would mean a focus on planning for communication and coordination, rather than on death and injury.

An important advantage of planning according to the problem solving model is that it allows the possibility of improvision of solutions in the response period. Thus it moves away from a current tendency to consider emergency planning adequate only if it contains detailed descriptions of appropriate behavior for all hypothetical scenarios. Emergency plans now fill volumes of loose note books filled with appendices and revision. This elaboration of trivia is in large part a logical extension of thinking based on the military mode. That direction has also been encouraged by government regulatory agencies as well as by "safety - conscious" public interest groups. For example, to obtain an operating license from the Nuclear Regulatory Commission, utilities are required to present detailed emergency plans which are then criticized by "public interest" intervenors as "incomplete" and who insist more details are needed to deal with other scenarios. Such elaborations are self defeating and mire effective emergency planning in a morass of paper. If one builds on the pattern of pre-emergency behavior, detailed proscriptions are not necessary. One should not assume that improvising indicates a failure in adequate planning.

Britton (1989a, 1989b) has commented that, in the evolution of Australian disaster planning, critiques of disaster response and the identification of previous disaster problems has led to increased bureaucratization and centralization of political authority. Those modifications create the conditions which evoked the critiques in the first place. Britton (1989a, p. 9) argues that organizationally "under conditions of disaster, decentralization and even improvision is a more applicable response." He comments that "effective organizations engaged in complex non-routine tasks evolve organic structures characterized by low degree of centralization, a low concentration and minimum formalization." In the same vein, Kreps (1990) has recently argued that emergency management needs to include both



improvision and preparedness activities. Without improvision, emergency management loses its flexibility in the face of changing conditions. However, with the lack of preparedness, emergency management loses some degree of clarity and precision. Kreps argues that preparedness and improvision go hand in hand. Preparedness means to organize a response prior to an event and improvision means organizing a response during an event. His suggestion is not that you can substitute one for another but that *both* are always involved. He further argues that planning and preparedness increase the ability to improvise.

The problem solving model, then, suggests that planning should be directed toward developing an effective response. This is done not by playing paper status games in allocating authority but by concentrating on structures which facilitate coordination of a multiorganizational response. The best anticipation of that is a knowledge of pre-emergency behavior and pre-emergency organizational domains. With that base, one can incorporate new emergent behavior which will arise in the emergency response, if the problem solving planning focuses primarily on response generated demands. Such planning does not have to be detailed and anticipate every contingency. Improvision is important since there is usually more than one way to solve a problem. To solve problems, however, a social process needs to be created which can collect information, allocate resources, determine priorities among critical needs and to utilize most effectively the resources which are available in the community.

## Cooperation

The final "C" in the problem solving model relates to cooperation, rather than control. In the command and control model, there is a pre-occupation with the potential consequences of anti social behavior as well as a fear that emergency relevant organizations will not be able to operate because their employees would be traumatized or they would become ineffectual because of conflicting "roles." This role conflict was assumed to be based upon conflicting obligations between work and family, in which employees were assumed to "choose" to fulfill family obligations. That "solution" which was assumed to be rather universal and was seen as a potential threat which could be avoided by primary dependance on quasi-military personnel who are a family. On the other hand, rather careful empirical work on role abandonment - leaving one's emergency responsibilities - suggest this is a non-problem. (See Dynes 1987). In a study which examined the behavior of 443 persons who had roles in relevant emergency

organizations in emergencies dealing with four different disaster agents, the following conclusions were reach:

> Not one abandoned his/her emergency role obligations to opt for familial-role obligations. For those who were at home, or away from home or at the work site at the onset of the emergency, the most common response was to report to work or to react in some fashion to needs created by the emergency. Of those persons who were not at work at the time of the emergency, some 28 or less than one per-cent of the sample, indicated some delay in reporting to work.
>
> Finally, it should be noted in the instance of the subsample of the earthquake, the most efficient test of the role conflict hypothesis, there was no abandonment of occupational role responsibilities, nor any delay in reporting, regardless of location.
>
> Consequently, in these observations, there is not a glimmer of support for the usual predictions about the consequences of role conflict in emergency situations (Dynes 1987, pp. 84-85).

In effect, the fear which derived from the command and control model as to the massive failures which could be anticipated by the loss of personnel simply has no empirical support, although that mythological problem is still the object of planning concern. As a consequence, a more significant "manpower problem" is usually overlooked in planning and that is the "overabundance" of potential workers. That source is "volunteers" willing to contribute labor in the emergency (for further discussion, see Dynes and Quarantelli 1980; Dynes 1987).

Those "volunteers" can contribute significantly to the overall effort. For example, in our study based on our probability sample of Mexico City residents conducted about two weeks after the September, 1985 quake, we estimated that some two million persons volunteered their effort in that situation. Almost half of them worked four days or longer and almost half indicated that they have worked an average of nine hours a day. Much of that work dealt with search and rescue activity and with the provision of supplies (For greater detail, see Quarantelli 1989).

The illustration of Mexico City is intended to counter the usual assumption of the military model that issues of "control" are critical and that the loss of motivation by "victims" of the emergency result in serious manpower losses in emergency organizations. It is true that organizations, based on the para-military model have considerable difficulty in "absorbing" volunteers because they cannot easily incorporate them into their rather rigid rank and authority structure. On the other hand, it is obvious that



volunteers can contribute significantly to the overall emergency system. The effective use of volunteers, however, is dependant on considerations being built into planning for their utilization. In the military model, such consideration of potential cooperation are irrelevant.

The previous discussion of volunteers does not mean to imply that emergency relevant organizations do not constitute the core element of the emergency response. Obviously, they do. The point is that emergency relevant organizations *do not* experience major problems of staffing in emergencies because they have a loyal motivated "regular" work force who are willing to increase their time and effort during the emergency period. They do this willingly. The volunteers are simply supplemental but can perform significant emergency tasks, such as search and rescue, which are not the responsibility of any pre-emergency organizations (e.g. established, expanding, and extending organizations). Volunteers also can constitute the primary staffing of emergent organizations. Emergency organizations can count on the workers to increase their efforts to meet the peak demands created by the emergency situation. And other organizations expand and extend their activities to emergency tasks. In addition to those usual organizational resources, there is an additional manpower pool always available from volunteers. In fact, communities are characterized by a more effective utilization of potential manpower than they exhibit in the pre-emergency period. Rather than being characterized by ineffective manpower allocation and loss of effective workers, emergencies are more likely to be characterized by a scarcity of relevant emergency roles rather than by the lack of persons who are willing and capable of filling them.

This means that the central planning problem should not be focused on "control" but on ways to effectively reallocate human and material resources in the community. Many of those allocative decisions will be made without much planning attention. For example, families might "volunteer." Organizations might extend the length of the usual working day or may double the shift size. Many of those decisions are logical and do not need extensive pre-emergency consideration. On the other hand, planning for the coordination of the more complicated community activity does need attention, and the problem solving model moves much more effective toward that goal than does the military model.

## Conclusion

In sum, a much more effective planning model is the problem solving one. That model is derived from research on organized behavior in the emergency period rather than derived from analogical thinking derived

from military assumptions about the consequences of enemy attack. It is focused on the notion of problem solving - that emergencies are, in effect, sets of problems which have to be solved with some degree of speed and effectiveness by the existing resources within that social unit - the community. The problem solving model assumes that the resources from the pre-emergency community are relevant and sufficient. And that the conditions of the emergency period will not be characterized by social chaos but by the continuity of effort and structure. The problem solving model does not assume that what is needed is a top down, rigidly controlled and highly centralized pattern of social organization. Since this pattern of social organization is not effective in pre-emergency communities, there is no reason to expect it will be effective in emergency situations. The key element is to develop mechanisms for integrating the emergent and convergent activities which are necessary to solve the problems. Thus the primary focus of emergency planning efforts should be on the development of mechanisms and techniques of coordination which will allow an effective response on the part of the organizational resources in the community.

There is considerable irony in the fact that much of the recent increased interest in emergency planning has been channeled in directions which reinforce the military model. The application of emergency planning adapted to risky technologies has also adopted the conventional wisdom with its dysfunctional assumptions. Those dysfunctional assumptions have become embedded in legislative and judicial requirements, often at the urging of "public interest" groups with stated goals of increasing safety. Thus, the consequence has been to increase rigidity, rather than safety. One additional problem may be emerging with the rather rapid adoption of computer assisted information systems, advertised as an aid in developing a rational emergency response. Displayed information on computer screens provide an illusion that "real" variables can be modified by a key stroke and, thus, those who stand before such displays can command the situation. Certainly, new technologies can be helpful *if* they are designed to support the problem solving model and not to reinforce the command and control model.

There are a few glimmers of hope for the future. There is a new generation of emergency planners who are less burdened with the earlier scenarios of enemy attack. There is a growing research tradition of research on emergency behavior which suggests that emergency planning needs to be organized around problem solving. The capacity for problem solving is inherent in every form of existing social organization. The goal of emergency planning then should be in the direction of mobilizing those problem solving skills in the most effective way.



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