

involved were federal level agencies, such as the Department for Public Works in the Secretariat of Agriculture and Hydraulic Resources.

Fourth, although there was not a city wide EOC operating on a 24 hour basis to integrate overall activity, internally most of these agencies established command centers to coordinate the response of their own organizations. For example, the Department of Urban Transportation within the DDF established an EOC within the first two days, as did the subway system and others groups.

Typical of the types of activities and problems that were occurring for these organizations can be seen in such agencies as the Public Works division of the Secretariat of Agriculture and Hydraulic Resources. Immediately after the initial earthquake on September 19, brigades of workers including administrative and support personnel were informally created in the Public Works division for search and rescue activities, the transportation of victims, and other related tasks in the immediate vicinity (as we shall discuss later these brigades in most cases were informally formed and were not the result of prior planning or even formal bureaucratic requests at the time). Soon, the organization was requested by their Secretary to evaluate damages, a task which took place for the first two days. In addition, they were asked by their agency to supply potable water to people in the most severely damaged areas. None of these tasks were part of their normal duties.

The situation was described by one informant in the following manner:

These tasks were very difficult at the beginning. First, we were asked by the department to evaluate damages, and that took up much of the 19th. Many of our people were already working on various rescues, helping people. Then, we were asked to supply water. We don't normally do that. We only have five water wagons, and we used them to supply water to hospitals and refugees. We had to contact private companies and ask for their help. Eventually, we were able to get 92 wagons.

The emergent nature of the action was described by another informant as follows:

During the first two days, everything was absolutely spontaneous and improvised. There was no coordination, just spontaneous help. For the first two days, the situation was close to chaos. However, by the third day things were getting organized.

On the third day, the Secretary gave instructions regarding task allocations to each of the departments. The Public Works division was assigned the task of receiving materials and equipment from other private and public agencies. They also coordinated a mass flow of volunteers, designated 20 specific work sites, and allocated personnel and equipment to engage in rescue and debris clearance. Additionally by the third day, 92 water wagons had been secured and a more coordinated system for supplying water was established.

Also on the third day, the Public Works division contacted the DDF and identified the priorities for their tasks and began to coordinate their activities with DDF personnel. In addition, they developed contacts with such other organizations as the United States Embassy (which provided needed equipment), and the University of Mexico which monitored the water quality in the mobile units. The Water Commission of the State of Mexico was given some equipment; it also divided the city into areas in which each organization would provide water.

In carrying out these emergent tasks during the first three days, the agency faced three major problems. First, given the lack of prior disaster planning, the response was ad hoc, spontaneous and emergent. Second, they had numerous equipment failures. Third, they had difficulty in handling and integrating the massive influx of volunteers. As noted by one informant:

The arrival of people and volunteers was enormous, but it turned out to be a source of difficulties for us. People started pouring in from all different states, and they came without tools or equipment of any kind. Before they could be assigned and sent to a post, providing them the food and equipment they needed, proved to be very problematic for us.

Other lifeline organizations extended their activities into similar nontraditional areas. The subway system, which is part of the DDF's Department of Transportation, initially turned its attention to restoring its operations. The metro system received relatively minor damages. Most of its trains in service at the time of the earthquake were able to reach stations, and within hours it was operating at near peak conditions. By the second day this organization turned its attention to other emergency tasks. As one official said:

Then we dedicated our efforts to other aspects. We organized all our technical and professional people so that we could evaluate civil works, such as bridges and buildings. We provided a group of architects and engineers to other organizations.

Unlike the Department of Public Works from the federal level agency of the Secretary of Agriculture and Hydraulic Resources, the metro system did have contact and some linkages with other units of the DDF. Through the Department of Transportation, they initially made contact on the afternoon of the first day with the Secretary of Government of the DDF. Information was exchanged and tasks were discussed. However the major coordination that did occur took place within the EOC of the Department of Transportation. From the third day until the end of the emergency period, representatives of the metro system served on the CME.

In summary, it can be said that the lifeline organizations were especially important in the organized response pattern during the first three days after impact. Possessing large amounts of needed resources and skills, they were able to extend their activities into nontraditional areas. Although overall coordination of search and rescue, debris clearance, casualty care, and the provision of water and food was not achieved during this period, through time, pockets of integration between units and intraorganizational coordination did develop. Most importantly many disaster created demands and needs were met in a relatively effective manner.

c. The response of PEMEX

PEMEX is the national petroleum company of Mexico. It is a massive organization, employing thousands of personnel and possessing voluminous resources. Having found through a quick initial inventory that it had suffered no major damage to either its equipment or production capacity, PEMEX assumed a major role in the immediate post impact period of the earthquake. It was able to mobilize over 5,000 workers and engage in a variety of emergency tasks, particularly those of search and rescue and of sheltering. Furthermore, it undertook these activities with great autonomy and limited its interaction with other organizations to the development of some contacts with the Army.

The initial request for a PEMEX response came from a hotel. At first, the company officials felt that they were not authorized to assist in such nontraditional work tasks as search and rescue. But within two to three hours the magnitude of the disaster became apparent, and the decision was made to mobilize PEMEX'S massive resources to aid in the response. The Director of Projects and the Director of Security for PEMEX coordinated the response. As an official of PEMEX said:

We began to organize a system of aid. We checked to see what supplies we could get right away. We contacted the superintendent, the ministers and their supply houses so that they would provide us immediately with an inventory or equipment, mainly cranes...We decided at that time

that the most important thing was to extract the greatest number of live people.

In undertaking these initial tasks, PEMEX partly coordinated its activities with the Army. Primarily this involved the Army requesting PEMEX's help, and PEMEX proposing that all search and rescue projects have army representatives to account for recovered money, extricated bodies, found properties, etc. Even this interaction presented some problems of coordination during the first two days.

I think that during the first two days there existed an emergency in which you could say...there was disorganization, and anguish. This was true both in our relationships with the Army and internally. You see, whenever the army needed an action from us, they would get in touch with our security chief and tell us. But there was much disorganization and lack of coordination. Why? Because there had never been a chance to work in a situation like this.

Although it continued to work with the Army, PEMEX decided it could most effectively work independently from other organizations.

I thought that we [PEMEX] could organize in a self-sufficient way with well placed work crews...that [situation] allowed us to organize the work teams, machinery, personnel, feeding of workers, lodging, etc. So we contacted the Army and asked them to consult with us at different work sites.

An EOC was established at PEMEX headquarters and emergency communication equipment was installed. A map of damaged areas was constructed, and PEMEX decided to focus its rescue activities on 24 major sites, including such important buildings as the very heavily damaged Juarez Hospital and the General Hospital. A map was used to divide the city into four sectors. Within each sector, one PEMEX supervisor was placed in charge of field operations. Each sector also had one coordinator in charge of the number of sites or "fronts" at which PEMEX worked in rescue and debris clearance.

Within two days, about 5,000 organizational personnel were mobilized from the city and from neighboring states. Arrangements were made for housing and feeding the workers. The medical staff of PEMEX provided medical aid to the rescue workers operating out of the various sites.

In addition to carrying out search and rescue tasks, PEMEX, through the Union of Petroleum Workers, also established and managed two major shelters for the victims. One was set up at a college building and at one of the refinery facilities. Food and materials were provided by PEMEX. The staffing of the shelters was managed by the union workers. The shelters operated for only a few days before the residents went to other shelter sites supervised by the DDF.

In a relatively short period of time, a rather elaborate emergency response team emerged within PEMEX. After the first two days, architects, construction supervisors, doctors, security personnel, and workers were organized into a very autonomous unit.

Autonomy certainly epitomized the response of PEMEX. Except for their relationship with the Army, the company worked by itself. One top official explained the advantage of this type of arrangement for the organization:

When we know the resources that PEMEX has, we tend to want to be self sufficient. That was one of the proposals put forth to the director, i.e., that so we don't work in a disorganized fashion, and so that we can accomplish specific tasks, nobody should get in the way. That might sound a bit lofty, but that's the way it seems. Because, we see other institutions as very disorganized, not knowing what to do and they do not have our resources...up to the point that Telmex de Mexico called us to find certain tools because they had problems with their requisition equipment. But, we really didn't coordinate with others.

Apart from the Army, the only major interaction PEMEX had with either the DDF or other elements of the federal government was to meet twice after the first two days with the DDF to inform them what PEMEX was doing. Representatives of the company also had a similar meeting with the President of Mexico. This lack of communication, contact, and coordination with other groups, while obviously perceived to be beneficial to PEMEX, was also noted by an official as having negative consequences:

I think that is bad [the lack of coordination and integration]. Because a system should be demonstrated that, in another situation of emergency, could be implemented quickly so that we all could collaborate.

PEMEX extricated over 1,000 bodies from the rubble and claimed to have rescued over 400 living persons. Basically, the company operated by itself, and was left alone by others. Due to its

massive resources, its visibility and legitimacy within the nation, and its ability to structure an effective internal organization, it provided a valuable service to Mexico City.

d. Response of other organizations.

The hundreds of other responding organizations and the millions of volunteers launched their mass assault under the conditions we have previously discussed, namely a lack of prior planning and overall coordination. Organizational behavior ranged from maintenance of traditional structures and tasks to development of new structures and/or tasks. For purposes of illustration, we shall now briefly note the impact time activities of some formal emergency oriented agencies and groups.

Some of the traditional emergency oriented response organizations continued to engage in somewhat normal tasks. The Federal District Police Agency, for example, had about 20,000 members, 2,000 patrol cars, 1,500 motorcycles and a standby unit of 500 officers who can be quickly dispatched to any emergency site. However, the police generally limited their activities to traffic and crowd control (and to some extent sharing the security of damaged sites with the military). It is of interest that the police reported that in the days following the earthquake there were fewer traffic accidents than usual and to a lesser extent somewhat less traffic congestion because drivers drove more carefully than usual (and possibly also because free subway transportation was provided between September 19 and October 23).

The Fire Department of Mexico City is part of the Federal District Police Agency. It is very small--only 800 members--for a city of the size of Mexico City, because given the nature of building construction in the city, there are relatively few everyday fires. For example, the fire department usually has about 3,000 runs per year, compared to over 30,000 in some large American cities. Relatively few fires resulted from the earthquake. Although over 300 fires were reported during the first three days, a high ranking officer of the department noted that there were only about seven or eight major fires on the first day or so. Therefore, the fire department also was available to extend its activities into the rescue and the transportation of victims, which it did for about eight days. In using civilian volunteers for rescue tasks, one firefighter was assigned to supervise the work of such teams.

Similarly, the Mexican Red Cross also engaged in traditional tasks although it did somewhat extend its regular structure. It was one of the major organizations involved in rescue and relief work. It established 12 first aid stations and provided doctors in over 50 ambulances. During the first day these operations treated over 1,000 victims. These augmented the normal four large and 18 smaller permanent medical centers run by the Red Cross throughout the city. Furthermore, it became involved in the collection and

distribution of food and clothing to over 60 shelters. However, in carrying out these tasks, the Red Cross worked fairly autonomously from other agencies and governmental units.

Some other organizations indirectly provided the personnel for nontraditional activities. Almost all non-emergency governmental and many commercial organizations were closed during the first three days. Many of their employees became individual volunteers, doing the tasks we will discuss in more detail later in Part III. In addition, there were a large number of group volunteers. That is, their helping behavior was part of a group or collective endeavor. They volunteered as members of a variety of public and private organizations, unions, student groups, and neighborhood associations. (For the distinction between individual and group volunteers, see Dynes and Quarantelli, 1980).

Given the lack of planning and coordination during the initial period, some degree of interorganizational conflict would have to be expected. Such conflict did emerge. Much of it centered around problems of access to secured areas and disagreement over response goals by volunteers, private agencies and various officials, particularly the Army. As one official said:

there were incidents many times, due to people disregarding security precautions who wanted to salvage their belongings, and from technical problems of the rescue effort.

For example, at the rescue site of a major hospital, personnel from the hospital and volunteers clashed with Army personnel who attempted to bar entry into the site. Given the absence of an agreed upon pass system among involved organizations, many volunteers were denied access. Furthermore, strong overt disagreements developed over the perceived priority given to the apparently contradictory tasks of rescuing survivors and debris clearance. However, not all of the clashes resulted directly from the disaster situation. There were instances of disagreements between members of some trade unions and the civil authorities which were clearly carryovers from preimpact differences of a political nature.

Clearly the first several days after the earthquake posed a difficult situation within which organizations had to operate. There was a great deal of uncertainty about losses and problems. As groups accepted new tasks or new personnel, or both, much organizational diversity was created. There obviously was a substantial decrease in formalized ways of doing things. Only very limited intra or interorganizational coordination of any kind was achieved. Decentralization of decision making often occurred.

Role Behavior of Organizational Personnel

The social environmental uncertainty for organizations however did not lead to paralysis of actions. It is sometimes thought that officials will fail to act in very stressful situations because of one of two possibilities: they are stunned by the dramatic happenings around them or they give priority to actions involving their own family members. There is little evidence in our data of either of these two factors becoming operative in the Mexico City earthquake. Officials, while surprised and sometimes awed by the earthquake consequences, were not psychologically incapacitated by what they experienced. While the word "panicky" was sometimes used in describing reactions, it is clear that the term was employed in a non-technical sense, that is, that people were frightened, not that they manifested dysfunctional personal behavior. Neither did officials show much "role conflict" that prevented them from carrying out their work roles because a "family first" orientation developed. Such behavior is consistent with what has been reported for many other disaster situations (e.g., for the usual lack of panic see Quarantelli, 1981; for absence of behavioral role conflict, see Dynes, 1987).

Several of our interviews illustrate how individuals who had job responsibilities maintained or assumed their work roles. The first quotation is from a high ranking official in the metro or subway department who was on duty at headquarters when the first earthquake occurred. He noted:

The behavior of everyone involved was rather exemplary. People received a great impact at their places of employment. One group that was hit very hard were the personnel from the central control office who were witness and protagonists in one of the most critical zones of the city. Our people were able to see first hand how the buildings around us were crumbling and collapsing. As they received the mass of phone calls from the [subway] conductors [on trains] and their families, they maintained their positions of responsibility with great composure and without problems. They realized that the place where they would accomplish the most would be at their jobs. And within the great uncertainty that we all faced, the general response of the staff was to do their jobs.

A Red Cross official described his experience:

I was at my brother's house at the time of the earthquake. I woke up and felt very strong tremors. When the strongest ones were over two

colleagues who had suffered damages called me up. With that news I started to worry a little and I drove downtown at about 7:25 and about 7:45 I was at Juarez Avenue...I was driving my brother's car which has the Red Cross symbol painted on it. I was stopped there and asked for help to rescue some people who were inside the former Department of Interior building... secretaries and cleaning people who go to work very early. Some were trapped in elevators and some were in offices with doors stuck. After helping there I helped to get some 10 to 15 children who were not trapped but who were wounded...I started thinking about what must be going on in my own house. I could see many people coming and going who appeared to be very frightened, so I decided to go home after telling them more or less what they had to do.

But this intention was also aborted:

Further down on Juarez I was stopped again to provide assistance. Some judges had been trapped in the building next to the Regis Hotel when they tried to rescue some people who were still inside. One of the central pipes broke, a fire started and they got trapped in there. The place looked like a giant blowtorch burning backwards. Fortunately the first Red Cross ambulance arrived with some of my friends in it. With the help of four of them we went in to rescue the judges who were OK.

Again he was concerned about going home:

At that point I told them I was in despair because I did not know how my house would be. I asked the assistant I had at the time about the conditions of the area. He told me it was very bad but people were starting to get organized. He also told me the chair of our committee had ordered me not to go to the Red Cross, but instead to head for the disaster zone, to prevent our young people from attempting rescues because they were for the most part adolescents and the situation was too dangerous. Also I had to go there to send information here to the headquarters and try to organize the people there and send them back to the headquarters. I went around the area all morning; I got some people to leave the area then I went to the Victoria telephone

office where I got some more people out. I reported at about 12:30 or 1 pm in the afternoon and was told then to come back here to the Red Cross so I returned at about 2:15pm and here I remained.

As indicated in earlier quotations and descriptions, most organizations despite the uncertain conditions in which they found themselves, attempted to move into action. They could try to do something because in the great majority of cases their personnel either were on duty and remained there or attempted successfully to get to their offices. Abandonment of work roles or failure to assume job responsibilities was not a noticeable problem in Mexico City during the emergency period.

In fact, there was a rough sequence in the response of organizational personnel. First, officials and staff generally remained at their jobs or those away from their groups went to their job locations (sometimes in very roundabout ways because of debris clogged streets and getting involved en route in improvised search and rescue efforts as in the case above). Then at offices and places of work, personnel made initial assessments of damages and instituted efforts to maintain or resume relevant operations. Usually resumption of full scale normal work activities was impossible or unnecessary in many organizations. This allowed in many cases, the organizational workers to form work brigades to help out others, usually people outside of one's own organization. (As we shall discuss later, the appearance of these work brigades ranged from those that were fully of a spontaneous and volunteered nature to those somewhat formally encouraged by the bureaucracies involved).

A different official from the one previously quoted described what happened in his organization as follows:

Around 800 people work here and taking care of the damage done to it was very important. There was some real damage that occurred to this building that had to be taken care of. That was one of the first things we accomplished with the help of our people.

But then he notes:

We had the opportunity to learn through radio and television of the magnitude of the tragedy. One of the first things that occurred after we reestablished metro service, was the establishment of brigades to help the people of the city. Some people within the metro organization suggested that we create these brigades, not so much as a help to any other

organization in particular. The general response was not what to do but rather just to do something.

We brought in medical, civil works, and administrative personnel. We brought in big and small trucks, equipment, medical supplies that we have in our clinics, such as oxygen tanks, shovels, picks, gloves and so on.

We organized brigades to be sent to the different zones of the city. The reports from that first day are that we arrived to the locations where help was needed the most, desperately, urgently. In the center of the city you only have to walk a few blocks to see the effects of the quake, the demolished buildings where they required help. The people welcomed the metro brigades. It was very helpful.

As the days passed, more organized forms of help arrived...That help lasted for a week until people realized that there was a lot of help, maybe more than required where the more urgent situations were being handled by more specialized people.

Thus, in many organizations there was an extending out of a somewhat collective assistance to others. One of the consequences of this was that a strong sense of social solidarity developed. It is possible that this contributed, as we shall indicate later, to the lack of dissatisfaction the great majority of our survey respondents expressed about the organized response to the earthquake.

To summarize, in this chapter we have depicted an assault on immediate postimpact problems; there was a massive ad hoc and emergent organizational response alongside a massive convergence on disaster sites by many individual and group volunteers. During the first three days, the response was certainly decentralized, and some organizational conflict emerged. However many tasks were undertaken, victims were rescued, the dead were discovered, shelters were established, lifeline systems were repaired or the services provided on an emergency basis, a morgue was established, and debris began to be cleared. Most of the activity was spontaneous and generated by needs in the immediate vicinity of responding organizations and volunteers. Although officials carried out their occupational or work roles only limited intra and interorganizational coordination was ever achieved. There was even less overall coordination of the organized governmental activities.

but this was partly compensated for by much emergent behavior as organizational personnel tried to do what they could in the situation.