First, there was difficulty in transporting the bodies. On an everyday basis, there are only eight vehicles available for transporting bodies. This normal resource was badly overtaxed by the thousands of cadavers that had to be handled. Eventually, buses as well as trucks and other vehicles were used to move the bodies.

Second, it was often difficult to identify bodies. By the fourth day of the emergency period, the Seguro Social Park had received 2,600 cadavers, of which 96 percent were not identified. Six days after the earthquake the CME stated that of 3,286 bodies, 80 percent had not been identified. A number of the cadavers were never identified, a problem typical of large mass casualty situations especially in developing countries.

Third, the large number of unidentified cadavers led to the question of what to do with the bodies. On the first day, a decision was made to dispense with autopsies of victims of the earthquake and to immediately deliver identified corpses to relatives. In the initial days also, the authorities attempted to cremate the bodies that had not been identified. But after a brief time this procedure was terminated because of public protest. In demonstrations, citizens paraded signs that said "we want bodies". Eventually the unidentified bodies were buried in a number of mass graves. However, this too was protested with signs saying "no incinerations, no mass burials." This procedure in most places usually leads to public protest (DRC has encountered this reaction to mass burial in countries ranging from Iran to Italy, see Blanshan and Quarantelli, 1981). But there was a recent precedent in Mexico City; unidentified bodies were also given mass burial after a gas explosion and fire at a PEMEX installation killed more than 450 residents in 1984. However, the mass disposition of bodies in that situation evoked no public protest according to a DRC study of the event; it was speculated that this resulted from the fact that the dead were almost exclusively recent rural migrants from the lowest socioeconomic strata of Mexican society.

h. Restoring Public Utility Services

As we already have noted, from an organizational point of view there was considerable disruption of many utility services. As we shall describe later, our survey results also indicate that a majority of residents of the capital had interruptions of their water, electric and telephone systems.

Restoration of such services was the prime goal of the involved organizations. However, they had to struggle with a variety of obstacles created by debris clogged streets, numerous and widespread breaks in infrastructure links, and damages at times to central installations and headquarter buildings. It took time initially to ascertain the extent of damages to facilities, finding and mobilizing needed resources, and communicating both within and

outside the utility organization. The context of and difficulties in undertaking activities are indicated in the following remarks from a high official in a public works department who was on duty at the time of the earthquake.

> The tremors hadn't stopped before I was on the phone with the executive director of the water system to check on the system and with the director for the control of hydrologic systems to check on the operations of the dams...that initiated inspection of our works...if there was any damage in the underground. There was no electric lights and the telephones didn't function well. Communications was difficult but we had our radio and this way we found out through the course of the morning that we didn't have much reported damage outside of the city. At 10 am we solicited all the machinery from the areas surrounding Mexico City to be concentrated in the city to aid the removal of debris...the same Thursday we organized here some brigades and a center of communication... we began to give instructions to teams without initiating contact with anyone else...clearing rubble, rescue of some victims... assessing damages to buildings...on Friday, findings faults in the southern aqueduct. Saturday, we began to work on a scheme for distributing water...about the only communication we had with the department...they assigned us a specific area to work....the distribution of plastic bags and tanks of waters...we distributed from our wells....we restored some services within ten days.

This illustrates that even when coordination problems did not hinder an organizational response, there were other problems which did, such as poor communication flow. There were difficulties too in launching an informational campaign to get citizens to boil water. However, despite all the difficulties the fact of the matter is that enough water was distributed so that it never became a serious problem for the population at large. This supposition is also supported by the survey data which indicates that while people factually noted that they had disruption of water supplies, there were practically no complaints about an inability in getting water to drink and use or about the water company activities in restoring services.

While the above is an illustration of what one lifeline organization did, the same picture emerged from our data with respect to the electric and the telephone companies. Initially these too struggled with trying to ascertain the nature of the

damages they had sustained, what resources they needed and were available, and what priorities they ought to assign in restoring services (the telephone company provided free calls between September 19 and October 7 if they were made at 13,000 boxes in the center of the city). They too had intra and interorganizational communication problems.

i. Sheltering and Feeding Victims

There were several patterns in the victim sheltering activities that occurred immediately after the earthquake. For one, a variety of public and private organizations, as well as individual citizens, attempted to help with the sheltering of those displaced from their places of residence as a result of the disaster. Also, collective mass shelters tended to emerge rather spontaneously as victims would gather in public areas and places close to their damaged or destroyed homes. As one informant noted:

> The location of shelters was just by chance on the first day; by people standing in the streets in front of their homes, at the beginning. People were in the streets, sidewalks, and gutters.

There was no official attempt to coordinate either the initial formal or informal shelter locations.

Rather soon too, many different organizations, including the Red Cross, churches, and the delegaciones developed their own mass shelters. As one of our informants noted:

> Everyone wanted to open shelters. It was another problem of coordination. Some of the shelters were adequate, such as the two opened by PEMEX that housed 200 people each. Others however lacked adequate space and sanitation.

As we will discuss in more detail in Part III, the number of people who were homeless as a direct result of the earthquake is not certain but probably numbered, as a very minimum, several hundred thousand persons. A variety of mass shelter arrangements were made. Basically however there were two types of temporary shelters: first, provisional housing in buildings such as schools, churches, auditoriums, and second, tent camps set in parks, gardens and parking lots (Perez, 1987: 10). The rough estimates on the actual number of such shelters established during the first few days vary from about 150 to 300. It is known, nevertheless, that the vast majority of the homeless did not use such public mass shelters of any kind, but instead found shelter in the homes of relatives or provided for their own housing. One report also states that 174 shelters were set up and 76 camps build on streets mostly around damaged tenement buildings with the greatest number

of these being established within the first ten days (Housing Reconstruction Program, 1987: 13). One estimate is that about 9,000 stayed in makeshift mass shelters in parks and another 30,000 may have utilized formal mass shelters; our survey data indicated that these were almost exclusively persons from the lowest socioeconomic strata in the city who tended to gather together with friends and known others.

After the initial three day emergency period, an attempt was made by the DDF to consolidate the mass shelter arrangements. The DDF was managing about 30 shelters of its own in various schools, stadiums, and parks, with the managing being done by workers from the delegaciones. On the sixth day, a plan was made to consolidate the smaller mass shelters into four main and longer term public shelters. However, many of the private and informal mass shelter arrangements continued throughout the emergency period, and some even longer. Furthermore, the actual mass shelter managements and operations were left to the individual delegaciones, many of whom assigned the task to the social welfare units of their organizations.

The provision of food was similarly handled. A variety of public agencies, private businesses, restaurants, relief agencies and individual citizens provided emergency feeding. PEMEX, for instance, provided food for its workers, and after determining the amount of food that would be needed to feed its people, it increased the amount by 50 percent in order to be able to offer food to needy victims. Food poured into headquarters of the most seriously damaged delegaciones. The Red Cross, churches and neighborhood groups also provided meals.

Control of the distribution of food to mass shelters but not elsewhere was coordinated by the DDF and CONASUPO after the initial three day period. Food was brought to CONASUPO and was distributed from the central location to the shelters. Within the Department the coordination was handled by the division of culture and tourism. It should be noted, as in most disasters outside of famines, that there was no significant shortage of food at any time.

j. Requesting and Handling Aid

Initial requests for needed supplies and resources came from a variety of organizations and agencies. At the federal level, the Secretary of Foreign Relations was appointed as coordinator of international assistance. This appointment was made on the second day. A few days later, a similar post was created within the DDF to handle foreign aid used within the federal district.

At the municipal level, the pattern of requesting aid was diffuse, decentralized, and uncoordinated during the first three days. Many groups worked somewhat independently in obtaining needed equipment.

PEMEX, for example, because it maintained its own communication system, was able to contact directly many potential donors and contractors. The Red Cross and various other private agencies also made requests and obtained aid. The Secretariats of Urban Transportation and of Health were able to coordinate some of this activity for their various departments.

Tons of material, supplies, medicines, clothing, and food poured into Mexico City both from within and outside the country. As of October 13, 237 foreign plane flights alone had delivered 1,462 tons of aid (Perez, 1987). About 43 countries provided personnel and/or goods (de la Madrid, 1986: 5). As has been observed even in the earliest studies of disasters (Fritz and Mathewson, 1957), the convergence of materials proved to be far in excess of the needs of the victims, and was mostly composed of much unusable and unneeded items. This created serious problems for collection, distribution and disposal.

For example, very large quantities of medical supplies arrived although there was no shortage of medicine in Mexico City. Many of the drugs were labeled in a variety of foreign languages, which created severe problems for inventorying. Additionally, there were many unneeded and unusable medical supplies. Similarly, clothing arrived in massive amounts, but some of it was not usable in a semi-tropical country such as Mexico. One storage room was eventually filled with shoes that were only for the right foot.

During the initial three day period, there was little attempt to coordinate this inflow of material. Donated food and clothing would be taken to delegaciones, the Red Cross, churches and other organizations to be distributed in whatever ways the groups wanted.

After this initial period, however, the DDF and the Red Cross developed a system to coordinate and manage this aid (for the Mexican Red Cross interactions and problems with counterpart national Red Cross organizations elsewhere, see Drabek, 1989). The DDF established five major warehouses in the city for storing the vast amounts of materials that had arrived and were being received. Any supplies that were specifically addressed to the Red Cross were sent to that agency; all others were handled by the DDF. A number of volunteers worked with the Red Cross and DDF personnel from a variety of departments in the inventorying, distributing and disposal of the material. From the warehouses, the useable and needed supplies were distributed to victims at the various mass shelters that were established throughout the city.

One informant from the Mexican Red Cross described the activities in the following manner:

> All this food, clothing and materials was arriving. A time came when the hospital could no longer handle all the stuff. When that

> happened, Sears allowed us to use its garage as a new collection center. We went there with a number of volunteers and opened the storage place. In one area we put medicines. There were doctors and volunteers who knew how to classify them. In another place we put clothing. We would have 30 or 40 vans per hour being driven out of there loaded with food, clothing, etc. to the destroyed areas. By the fourth day, this site was inadequate, and we had to move out into the parking lot. This continued for some time.

Although this flood of aid eventually tapered off, the task of handling the supplies involved thousands of people and continued over months. There were particular difficulties in handling international disaster assistance (see, Comfort, 1986). As will be noted later, this was in fact one of the few areas in which our survey respondents were relative negative in their evaluations of the activity at the local level.

k. Integrating Volunteers Into Organizational Activities

The massiveness and extensiveness of individual volunteer helping behavior will be discussed in detail later, including the fact that at least 2,000 000 residents of the capital city volunteered some services sometime in the first two weeks after the earthquake. But it is important to realize that a significant portion of that activity involved collective, organizational volunteering by people working as organized units with their fellow day-to-day coworkers. Here as elsewhere in the response to the earthquake, there was considerable intermixing of organizational and individual behaviors.

There were problems in training, controlling and integrating the individual volunteers that were used by such organizations as the Red Cross, the delegaciones, and certain units of the health and transportation sectors. Previously, we noted that one informant from a public works agency commented that it was difficult to equip and utilize all the volunteers who wanted to assist. Similarly, an informant from a major relief agency made the following observations:

> What we first did was try to have some control of all the civil volunteers who joined us. But this was not done the first day. That day was actual chaos; not on the part of the leaders and directors, but on the part of the middle ranks. At this level, we followed the directions of our President, but in going down the orders were diluted a lot since there was an enormous problem. You see we had lots of

> civilians who, due to their lack of training, would do as they wished at every particular moment. They would never see the necessity of getting organized and, thus, we happened to have lots of civil volunteers who were categorizing clothing and medicines, when we had nobody cooking.
>
> So the first thing we did was to control those people and see how many of our own volunteers we had, as well as volunteers from outside the organization. Then we had to decide where they might be needed, and after that, to control them. We finally to get organized had all the volunteers meet on the afternoon of the second day at two sites.

This pattern has been observed in a number of previous disasters (Dynes, 1974; Mileti, Drabek and Haas, 1975: 110). Many organizations simply do not plan and prepare for the integration of volunteers into their activities, and when massive numbers of helpers suddenly appear, coordinating their efforts can become difficult. It is interesting to note that a number of responding organizations in Mexico City simply sidestepped this problem by not utilizing any volunteers who were not part of their everyday organization.

1. Coordinating Organizational Response

Given our previous depictions of the behavior of various groups and agencies, it is not necessary to document further the absence of overall organizational coordination. However, from an observational viewpoint it is of interest to note that few officials thought that it was either necessary or important to impose centralized "control" on the situation. Rarely at the emergency time was the question asked which is sometimes asked by operational personnel in the United States: who is in charge? (Although much social science research argues that this is not a very meaningful question to ask, see Dynes, 1990). Most officials instead emphasized the need for overall coordination and cooperation.

Intraorganizational coordination was a little more common than overall coordination, but it too was often problematical. Frequently there were serious difficulties in information flow among personnel especially with disrupted phone services and the need to often communicate to widely dispersed work sites. Nevertheless here too some organizations were able to improvise to cope with the problem.

For instance, in the case of the Red Cross:

> ambulances from other provinces, which had radios that operated on frequencies that differed from those in the Federal District, were integrated and strategically placed so as to form an improvised radio communication net covering much of the metropolitan area (Drabek, 1989: 46).

However, despite the relative absence of overall, inter and intra organizational coordination, many things were done and were done in an organized fashion as we have illustrated in a variety of ways. Furthermore, what organizational personnel did, created a positive social climate. It is clear that as groups and their workers attacked problems in the aftermath of the disaster, they developed a strong sense of social solidarity.

While many of our organizational respondents expressed some sense of social solidarity, most had difficulty in articulating it well as in the case of the following:

> I think that in some ways one cannot, without having lived through this type of situation, express the situation. I think the experience, to feel what I myself felt is something that at times is indescribable. I think that in this matter the country was transformed in a serious way. I feel that the people who lived through the earthquake, participated in the acts of solidarity. We proved to ourselves that this was a country that could rise to the challenge, that we had the will to do so. I think that in a sense, I'm not sure how to express it, but I would say that when a great difficulty comes that we were able to confront it. I believe we all share an association based on our common experience of the earthquake. We were all affected in one form or another, friends, companions. Others suffered injury to their property while others had the good fortune not to suffer any of these things...but all were traumatized. We all remain conscious of the fact that in these events we must all cooperate. We saw the people as a group, not just specialists. It was a test of how solidarity can help overcome the challenges.

As we shall discuss later, it is possible that this sense of solidarity contributed to the relatively little dissatisfaction that our survey respondents expressed about the organizational response to the disaster. It is also consistent with the survey finding that as a result of the earthquake a clear majority had

developed after the disaster greater trust in other people than they had before the event.

Views and Actions About Disaster Planning

There was neither overall nor anything resembling community wide disaster planning in Mexico City. The only semblance of such thinking, embodied in the military DN-3 plan, for several reasons as was discussed earlier could not be implemented. Otherwise, other planning existed only in certain agencies and was primarily geared to emergencies rather than disasters (e.g., in the subway system), and was almost totally intra rather than interorganizational in nature.

In the absence of such planning, organizations struggled to cope with and meet the demands that surfaced in the emergency time period. While most needs were eventually met, the effort was marked by delays, uncertainties, overlaps, gaps, and was at best somewhat effective but certainly not efficient. Many involved organizational officials not only recognized this situation in retrospect, but thought nonetheless something should be done to prepare for future disaster occasions.

One of our respondents reflected six months after the disaster upon the importance of planning in this way:

> We can now take advantage of the experience. I think that those of us who had any kind of responsibility about the organization should have written something...about how it worked. To transmit the experience, an effort has to be made to have a certain method. We must be critical, self critical about what we did... there is the possibility of setting up small groups of people who would be responsible for this kind of planning and the possibility of systematic drills. We also know that there are other countries which have had similar disasters. Take a look at other countries... what can we learn from those experiences...why not study those experiences to learn from them?

Another official, from the Red Cross, said:

> We could see that the enthusiasm, the efforts of the young and the adults alike, many times didn't produce the best results. We weren't ready for such a big disaster. The Red Cross is ready to face any emergency but not everyone is ready. The idea is to educate people so they know what to do in the case of a big or smaller emergency. One's frightened at first

> and then reacts and wants to help. Sometimes the best help is to keep out of the way. Sometimes we need to know where we might be useful. Training is very important. Then, once you are where you're needed, you need to know what to do and how to do it. That's something we have to accomplish.

These kinds of comments were typical. Official after official, while often stating that generally their group did the best it could in the situation, indicated that organizational planning or its improvement was needed for future disasters. In part there seemed to be a perception that a future occasion might be much more organizationally demanding than the 1985 earthquake. There was a widespread feeling appearing soon after the disaster that something should be done.

Even more important, steps were taken at different levels and within particular organizations to either institute or improve disaster planning. As one official said:

> Everyone did his best and things didn't go too badly given the circumstances, but people learned that it was necessary to work more and be more prepared. So we have taken certain steps.

In the year following the earthquake, at the national level substantial steps were taken. A completely new agency, the Civil Protection Organization, was temporarily created by Presidential decree and provided with personnel and resources. A national disaster plan was initiated. The organization moved to encourage and promote planning at the various state levels. Plans were made for undertaking training and research. Organizational links were established with both domestic and international groups involved in disaster planning and studies. Building on these aspects and within four years, as we shall note later, a permanent, full scale organization with multi disaster planning functions and responsibilities was fully operational and institutionalized as the result of the passage of federal legislation.

Several other key organizations also consciously improved their own disaster planning in the relative immediate aftermath of the earthquake. The Office of Civil Protection at the DDF level, for example, wrote an extensive after action report on activities and problems in the disaster. This eventually led to the agency being given coordinative responsibilities and more resources. This enabled it in the year following the disaster to undertake more planning including carrying out seven drills ,one of which assumed there would be an earthquake affecting the central zone of the capital city.

The Mexican Red Cross was also another group which instituted structural and functional changes for disaster preparedness. For instance, at the time of our study seven new Emergency Centers (out of a network of 16 planned) had been established throughout the metropolitan area to provide a decentralized capability. They were to function as ambulance dispatch, first aid, volunteer training, and emergency and disaster relief centers. The Red Cross also planned and started to implement a National Training Center to train the civil population through educational courses in the rendering of emergency services, rescue operations, transfers to hospitals and paramedical and other services in the case of disasters. In addition, a National Communications Center was in the planning stage with the objective being to have a facility which would have a location and equipment for alternative and efficient radio communication in case of emergencies and disasters.

Since our study extended only up to a year after the earthquake, we do not know how many specific organizations actually changed their disaster planning (at least half a dozen of the groups we studied had changed in some way). Nor do we know whether what was instituted was the most appropriate steps to take. But some organizational change in planning did occur, a relatively rare post disaster consequence in most cases, as we shall later discuss.

One implications of these observations are obvious. While good disaster planning will not ensure that there will be timely damage assessment, effective resource allocation, appropriate intra and interorganizational coordination, and the rapid restoration of services after the impact of a disaster, its absence will hinder their realization. An emergent and ad hoc individual and collective response may eventually and effectively cope with the situation as it did in Mexico City, but it is not a very efficient way of proceeding. This was widely recognized after the earthquake and thus part of the drive to institute planning.

In summary, in this chapter we have described the structure of the organized responses and discussed some of the major tasks that took place during the first two week period of the emergency. Through time, a greater coordination of the effort was achieved through the activities of the DDF and CME. Tasks became more clearly allocated, a more established interorganizational division of labor emerged, and intraorganizational coordination increased. However, the basic nature of the response pattern continued to be a relatively decentralized one, with coordination among units at the same levels and engaged in the same tasks increasing, while overall vertical coordination remained fairly loose.

The overall response was and remained basically decentralized even in the later stages of the emergency period. In this respect, the decentralized pattern was not inconsistent with the regular, day-to-day operations of the DDF. It is a massive and complex organization that normally operates in a fairly decentralized

fashion. In this regard the organized response pattern that existed in the aftermath of the earthquake in Mexico City illustrates again the general principle from disaster research that disaster response is often normalized to everyday patterns (Quarantelli and Dynes, 1977), a point we shall return to in our research theme chapter.