PART III. INDIVIDUAL BEHAVIOR

In this part of the volume we present the findings we obtained from the two population surveys.

First, the 1985 findings are presented through a depiction of the earthquake impact consequences for the population, the mass communication behavior of the residents of the capital, the volunteer behavior of the population, and the attitudes and evaluations of citizens regarding a number of the responding organizations.

Second, we follow with a description of the findings from the survey a year later in 1986. Described are the longer run earthquake problems as they were viewed by the population, the attitudes of citizens about the handling of such problems, and what the population had learned from the experience of undergoing the earthquake.

CHAPTER 7.

THE 1985 SURVEY RESULTS ON INDIVIDUAL BEHAVIOR IN THE EMERGENCY PERIOD

In this part of the report we present our major survey findings about the behavior of individuals and to some extent households in the Mexico City earthquake. We first selectively present results from the 1985 survey study.

Four topics are discussed:

(1) Impact consequences;
(2) Mass communication behavior;
(3) Volunteer behavior; and,
(4) Attitudes and evaluations.

The logic of the presentation is to show how the residents of Mexico City were first directly impacted by the earthquake. In addition to this experience they may have learned from mass media reports certain information about the disaster. Both experiences may have influenced the volunteer behavior of some of the population. In turn, the result of exposure to mass media accounts and of volunteered behavior, may have affected what residents perceived and thought of various persons and groups, primarily in the governmental sector, who responded in the aftermath of the earthquake. As we shall see, only some of these logical possibilities were borne out by the empirical data.

Impact Consequences

a. Overall direct effects.

How much damage and disruption did the earthquake occasion? Such figures as have been reported elsewhere are in almost all cases estimates drawn from limited samples, selective cases, and in many instances just "educated and uneducated guesses" from private and public sources (see various sources cited in the U.S. Embassy report compiled by Bohlen, 1986; and those in Hobeika, Ardekani and Martinez-Marquez, 1987: 2-3). Our survey data, while not perfect, are rooted in a random sample of the population in the way indicated earlier.

The metropolitan area of Mexico City was not physically devastated by the earthquake as any observer on the scene could see, even though a headline in the September 20, 1985 issue of **US Today** said "much of capital in ruins" (p. 7A). Yet even the

physical damage seems to have been somewhat more extensive than might have been indicated by the considerable public attention given primarily to a very few downtown neighborhoods where some government buildings, several hotels and a few large apartment houses were laid waste, and around which much visible search and rescue took place. In fact, other researchers have noted that while Mexico City may have lost less than two percent of its housing stock, probably two thirds of all buildings which were damaged or destroyed were residential (Pantelic, 1988). Among our survey respondents, 22.6 percent reported some damage and 4.9 percent said there was great damage to the building in which they lived. While the cumulative percentages of affected buildings is a minority of all the structures, the figure of about a quarter of residences suffering some damage from the earthquake translates into several hundred thousand residential structures. (There are over two million buildings in the city).

While an occasional overstatement of building damage has appeared, for example, that "virtually every building in the city suffered some form of foundation failure" (Chandler, 1986: 497), almost all estimates have been in the opposite direction. Thus, published estimates of 30,000 dwellings destroyed, and 70,000 partly damaged (Storlarski and Santa Maria, 1987) would appear to be somewhat underestimations of actual losses. Even far more inaccurate were early published figures that:

> In Mexico City, 5728 buildings were damaged, of which 954 collapsed, 2,177 suffered fractures or structural damage, and the remainder suffered minor damage (as cited in the U.S. Embassy report (compiled by Bohlen, 1986: 2).

Equal understatements were made by the metropolitan zone emergency committee who reported a month after the disaster that there was a total of 5,728 buildings damaged including 3,745 residences, or a German insurance company estimate that 7,400 buildings were damaged of which 770 were total losses, and 1,665 severely damaged (cited in Degg, 1989). Even the President of Mexico in his State-of-the-Union address a year after the earthquake said that "four hundred twelve buildings were destroyed and 5,728 sustained damage" (de la Madrid, 1986: 5). As late as September 1987, US government agencies were still using the figure of 5,728 damaged buildings (e.g., in a report by the National Bureau of Standards entitled "Engineering Aspects of the Sept. 19, 1985, Mexico Earthquake as cited in the New York Times of September 27, 1987 p. 4).

While such figures continue to be cited in the literature even four or five years after the earthquake, there is an explanation of what appears to be serious understatements of destroyed and damaged buildings. As one analysis undertaken three years after the earthquake noted, almost all of the official reports issued did

"not include private buildings which may have suffered damage and were repaired by the owners without reporting them to the government" (Armillas, 1989: 3).

An examination of how many residences suffered some disruption of services of utilities, indicates how widespread was the earthquake impact. The water supply was interrupted in 39.9 percent of all residences. While slightly more than half (51.8 percent) of our households had no phones prior to the earthquake, about 16 percent of those who had prior service underwent disruption of their phones. Again these percentages translate into very large absolute numbers. They are also higher than published estimates of a 27 percent cutback in the water supply and a 5 percent disruption of local telephone services (from different sources cited in Hobeika, Ardekani and Martinez-Marquez, 1987: 2).

The Center combined these and other kinds of impact consequences into a victimization index. Basically we combined damage to house, interruption of electric, water, and telephone services (leaving out those households who lacked any of these services prior to the earthquake), and weighted them a in way so that damage to residence counted more than slight disruption of any of the various utility services. The end result was a threefold scale:

> major victimization = considerable or severe damage to house plus across-the-board disruption of all utility services;
>
> moderate victimization = slight damage to house plus disruption of at least two utility services; and
>
> no victimization = all respondents that did not classify as major or moderate.

The overall results show that while 45.1 percent of our survey respondents could not be classified as earthquake victims according to our index, 49.4 were moderate victims and 5.5. were major victims. That roughly translates to at least one million residents of Mexico City suffering major direct earthquake impact. Viewed another way, about ten million inhabitants of the capital of Mexico were directly impacted by the earthquake. To look at only the relatively few neighborhoods in the center of the city where there was massive physical damage and destruction, misses the disruption of social life which occurred community wide.

Furthermore, our index in no way measured other very disruptive effects. For instance, family life was disrupted for many families because of destruction and damage to over 22 percent of the elementary educational facilities which left hundreds of thousands of children without schools (United Nations Economic Commission, 1985: 10). There were socioeconomic disruptions as the result of

the unemployment of over 150,000 workers who lost their jobs because of the earthquake (Mendez, 1986). There was the disruption of governmental functions and services in that over 125 buildings either owned by state institutions or rented by them were totally or partly destroyed and had to be evacuated; these included the headquarters of the Ministries of Commerce and Industrial Promotion, Labor, the Navy, Agrarian Reform, and Communication and Transportation, among others (United Nations Economic Commission, 1985: 11).

But even just limiting ourselves to damage to residence and/or interruptions of certain household utility services, our data show that more than half of the residents of the city were directly affected by the earthquake. To be sure, because of the vastness of the metropolitan area of Mexico City, there were inhabitants who did not become aware for up to 12 hours after impact that an earthquake had occurred. However, in terms of the personal disruption of everyday life, a majority of the population, in the millions, were directly impacted to some degree.

Unfortunately, for technical reasons, the information we obtained on deaths and injuries among the surveyed households cannot be accepted at face value. However, our data suggest that a total casualty figure of around 130,000 may be reasonable (with the great majority of the injuries being very minor; this is consistent with some reports that at least 53,000 persons were treated at more than 280 on-site first aid stations and other facilities). Deaths probably did not constitute more than ten percent of the overall total. Published estimates and some official reports of the dead have given inconsistent figures ranging from 4,000 to 30,000 (Lopez, Lopez, and Cejudo, 1986) and even higher unofficial figures of 45,000 dead (Hamilton, 1986: 6); the higher figures are almost certainly incorrect. Nevertheless, as others have noted, the loss of life given the physical damage was both percentage wise, and in absolute numbers, surprisingly low (Palacios et al., 1986: 279).

b. Social class differences.

As has been long known to disaster researchers, disasters do not impact equitably on people and communities; some sectors always suffer more. This was true in Mexico City.

We found that the direct effects of the earthquake were not equally distributed at the social level when differentiated by social class. According to our victimization index, while upper class (UC) respondents suffered the least, middle class (MC) persons were more affected than working or lower class persons (LC). For example, 7.7 percent of our MC sample scored high on our victimization index compared with 4.2 percent of our LC individuals. In terms of being moderate victims, there again were more MC than LC affected, the respective figures being 60.5 percent to 45.8 percent.

In some cases, although not all, social class is associated with disruptions of certain lifeline services. While electric power and phone interruptions more or less cut across social class lines, considerably more MC (53.5 percent) than LC (34.9 percent) respondents had disruption of their water services, while only 5.8 percent of UC individuals reported they had such interruption.

It is often said that LC segments of a society suffer most in disasters. This is only partly supported by our findings. At least as measured by the indicators we could use, there were proportionately more MC victims than LC victims in the Mexico City earthquake (While we do not report other figures here, other variables often correlated with socioeconomic levels, such as education and occupation, are consistent with our finding of social class differentiation in impact consequences, whereas sex and age variables normally not correlated, did not show any significant differences). Of course, since the LC strata is bigger than the MC one, in absolute numbers there were more lower class persons affected directly by the disaster than middle class individuals.

There are at least two possible explanations for the relative greater MC losses reported in the disaster than for our LC respondents. Unlike in certain places around the world where, for example, lower socioeconomic strata persons live in flood plains or near active volcanoes, there were few settlement trends in Mexico City to push them into the earthquake prone areas. In fact, given the ecological and land use patterns of Mexico City, middle class persons were more likely to reside near the cultural, social and political centers of the city which as it turned out, were nearer or on the ancient lake bed which appears to have amplified the intensity of the ground shaking and increased the duration of the shaking at the time of impact (see the discussion in the special issue of Networks Earthquake Preparedness News, 1986: 3).

Also, it is possible that the survey results obtained may partly be an artifact of the situation involved--many LC strata persons in Mexico City had very poor housing on an everyday basis, living in dilapidated structures or buildings. The earthquake may not have noticeable created new cracks in the walls, sagging floors, or making doors or windows illfitting in LC houses, whereas such damages would have been far more noticeable and reported in the normally better kept residences of MC individuals. Also, while we have no direct data on the matter, there was an estimated pre-earthquake deficit of 60,000 housing units in the city, (Pantelic, 1988) presumably involving people from the lowest socioeconomic strata. If many of these people were living in the streets rather than houses, they could not suffer housing losses.

Mass Communication Behavior

Although Mexico as a whole is a developing country, the population of metropolitan Mexico City has substantial access to mass media outlets. In our sample, about two thirds (67.1 percent) had at least one black and white television set and 41.1 percent had at least one colored TV set. (In the survey a year later, 77.8 percent reported owning a black and white set, 41.7 percent a colored set.) Normally there are seven television stations operating in the city. Radio sets are so widespread that ownership is seldom enumerated in surveys. Listeners have a choice of listening to at least 57 stations. There are also more than two dozen newspapers available, although functional illiteracy may be as high as 20 percent.

The earthquake did little direct damage to the mass communication system, except for the private television network. But while the main studio of the private television system, TELEVISA, was severely damaged, its signal transmission was resumed within about four hours (Robinson et al., 1986: 97). The state television system, IMEVISION, continued to use channels 7, 11, 13 and 22 to telecast. Radio stations and newspapers for the most part were able to operate normally.

a. General usage.

In general, the picture that comes across from our data is that there was massive use of the mass media. We have no directly comparable data on normal usage. However, it would appear that the population exposed itself to mass communication content even more than it does on an everyday basis.

Particularly given the situation many residents of Mexico City found themselves on the day of the earthquake, there was very heavy usage of the mass media. For example, on the day of the earthquake only 37.2 percent of our respondents did <u>not</u> listen at all to a radio station (some of this probably is accounted for by the nearly 5 percent of the population whose residence suffered great damage and some more also lost electric power). While three stations each drew more than 10 percent of the listeners, all stations had some audience. Somewhat more surprising, over half of our respondents (54.7 percent) watched television sometime the day of the earthquake. In contrast to radio listening, it is noteworthy that nearly half of the viewers (49.7 percent) watched only one TV channel and another 6.8 percent watched that same channel in addition to another channel. But it is not unexpected that only 16.4 percent read a newspaper that day; this may not be far from the daily norm.

Of those that listened to radio, 28.7 percent said they listened in total more than eight hours that day. In fact, only 29.2 percent of the listeners said they heard radio broadcasts <u>only</u> two

hours or less. Of those that looked at TV, 27.5 percent watched eight or more hours! Newspaper readers read many papers not particularly concentrating on just one, two, or three.

Victims were somewhat more likely to listen to radio rather than to watch television after the earthquake. For example, high post-impact radio usage was reported as follows: non-victims according to our index (36.6 percent), moderate victims (51.1 percent), and major victims (12.6 percent). Television usage was respectively 46.8 percent, 42.8 percent, and 10.4 percent. Other data indicate that radio was the major source of information for more than 60 percent of our respondents.

b. Attitudes towards television coverage.

Were the audiences satisfied with what they obtained in their exposure to mass media reports? We did not ask this specific question directly. However, we found little expression of dissatisfaction on such matters as incompleteness of coverage, sensationalism of content, or failure to provide helpful information. We will document this specifically with respect to use of television content, but the same general picture also holds true for the radio audiences.

Viewers of television were asked their views about different aspects of the coverage of the earthquake. About a fourth (25.7 percent) of the survey population characterized the coverage as incomplete but nearly a third (32.3 percent) thought it was complete and the rest fell in between. Barely 15 percent of our respondents thought that the coverage was sensationalized in any way. Only about 28 percent indicated that the TV telecasts failed to provide much guidance or direction. Our survey respondents made little distinction between the disaster coverage by the private and by the government television networks.

We found little when we analyzed the views of those who thought television coverage was incomplete, sensational or nondirective. For example, there were almost no social class differences regarding the incompleteness of the TV coverage. Similarly there were no clear cut significant differences in terms of such variables as gender, age, marital status and similar demographic dimensions; the same was true with respect to our victimization index. In fact, about the only difference on the completeness of TV coverage of the earthquake was with respect to usage of TV; less frequent users compared to moderate and high users thought the coverage more incomplete (40 percent versus 29 and 27.9 percent).

UC respondents did see TV as being slightly more sensationalized than did **MC** and **LC** persons. So did men as well as those who were most victimized. However, because so few saw TV coverage as being sensational, the figures involved are quite small and probably not significant. **LC** and **UC** respondents also did see television as

being more directive, that is, providing guidance or useful information, than did MC individuals, but here too the numbers involved are rather low.

Women compared with men as well as younger respondents also saw television as being more directive but the differences again were not substantial. However, interestingly, more of those who were most victimized saw the television coverage as proving more orientation than those who were only slightly victimized or not victimized at all (respectively, 38.3 percent compared with 25.9 and 22 percent). This would seem logical since such persons would presumably need the most guidance or helpful information.

It is perhaps significant that at the time of the first survey, about two weeks after the earthquake, nearly a third (31.8 percent) of the respondents said they would just as soon hear less news about the consequences of the disaster. This could be interpreted in a variety of ways. But this along with the other matters we have just discussed would suggest that on the whole viewers were satisfied with how television reported after the earthquake. Even when asked what more information they wanted to know---and although about two thirds of the respondents mentioned something---few things were particularly singled out and only two questions received more than ten percent mention (16.6 percent wanted to know if there might still be survivors and 14.9 percent wanted to know what was going to be done with the homeless). Those respondents most victimized by the disaster did not appear to have a different set of attitudes about television coverage as a whole, than did non-victims.

Volunteer Behavior

The popular wisdom holds that the "mass assault" during the earthquake was of immense proportions. Mexican officials and the general public have pointed with pride, and outside observers with a degree of amazement, at the presumed outpouring of volunteer activities in the immediate post-impact period. This massive voluntary effort seemed to be verified by the sights and sounds of television news tapes; around the world viewers saw at least scenes of extensive and long lasting search and rescue efforts.

How accurate this image of mass volunteering is depends on what one takes as the base for the answer. As can be observed in Table 1, of 2,966 individuals about whom we have information from our survey, 290 or 9.8 percent engaged in some kind of volunteer action at some time during the nearly three weeks subsequent to the disaster impact. Conversely, 90.2 percent of the sample undertook no disaster related tasks or volunteered in any way.

Therefore, the image of massive citizen emergent actions seems to be questioned, since only about one in every ten residents of Mexico City participated. But it is necessary to consider the

population base of the metropolitan Mexico City area. If that is taken into account, the 9.8 percent translates into over 2,000 000 volunteers (and depending on what is taken as the actual population of Mexico City, the figure may be over three million), a rather massive response by any standard! It should be noted, furthermore, that these statistics refer to the total population of Mexico City and include all age categories. If children under the age of 12 are excluded from the sample, the subsequent percentage of those volunteering rises to 12.4 percent, or almost one of every eight adult residents.

Table 1: Factors Related to Volunteering

	Volunteers		Non-Volunteers	
	N	%	N	%
Total Sample	285	9.8	2,637	90.2
Gender (a)				
Male	192	13.2	1,259	86.8
Female	93	6.3	1,378	93.7
Age (b)				
Under 12	3	0.5	642	99.5
13-17	28	6.2	431	93.8
18-29	136	17.3	650	82.7
30-44	77	14.7	450	85.3
Over 44	40	7.9	461	92.1
Location (c)				
Far	155	7.6	1,883	92.4
Middle distance	84	14.6	490	85.4
Near fringe	34	15.1	193	84.9
In damaged zone	11	13.7	71	86.3
Socioeconomic status (d)				
Upper class	57	25.7	165	74.3
Middle class	129	11.7	978	88.3
Lower class	98	6.2	1,494	93.8

a) Chi square=38.66879 Total N=2,922
b) Chi square=137.31914 Total N=2,918
c) Chi square=34.89207 Total N=2,921
d) Chi square=92.13635 Total N=2,921

Published reports that volunteers numbered around 50,000 (Hobeika, Ardekani and Martinez-Marquez, 1987: 3 citing a Japanese report about volunteering in the immediate aftermath of the earthquake) would appear to have underestimated the total, given that 41.9 percent of our respondents who volunteered said they worked at

search and rescue. In fact, practically every estimate on volunteering which tried to attach numbers to the activity fall considerably short of the figures we found. The highest we found in the literature was "one million volunteers" (Perez, 1987: 3).

a. Kinds of volunteer activities.

A wide range of different tasks were undertaken. They ranged from search and rescue and debris clearance to collecting food and other supplies and money, to transporting goods and material. Other volunteers served as translators for the foreign relief workers, helped to inspect buildings, provided psychological counseling, donated blood, assisted security personnel, and provided various kinds of medical help. Still others opened their homes to victims forced out of their own residences.

For descriptive and analytical purposes, the full range of activities have been collapsed into seven categories, as shown in Table 2. From this it can be seen that most volunteers either engaged in search and rescue, or helped in the procurement and processing of supplies. A little more than 75 percent of all volunteers undertook these tasks. Some help in providing medical aid and psychological counseling was given by nearly eight percent of the volunteers. About four percent either provided transportation or assisted in the collection of money for victims. Another three percent helped to house and shelter evacuees (but see our later discussion of the housing and sheltering of evacuees). The remaining ten percent engaged in a broad range of different activities, none of which individually involved more than 1.8 percent of the volunteers.

Table 2: A Comparison of Volunteering By Gender

Tasks	Men N	Men %	Women N	Women %	Total N	Total %
Search and rescue	98	52.3	19	20.5	117	41.9
Provision of supplies	49	26.2	44	48.6	94	33.5
Medical/psychological aid	11	5.9	11	11.9	22	7.8
Transportation assistance	8	4.2	3	2.8	10	3.7
Shelter and housing aid	3	1.5	6	6.2	8	3.0
Collecting funds	3	1.6	2	2.3	5	1.8
Other assistance	16	8.4	7	7.8	23	8.2
Totals=	188		91		279	

Chi square=31.86

The great majority of volunteered tasks involved more than minor expenditures of time. Nearly half or 45.2 percent, of the volunteers worked at least four days or longer. A relatively substantial number, 17.6 percent, spent at least 10 days or longer on earthquake related tasks. In terms of daily time, 44.9 percent of those who volunteered said they had worked at least an average of nine hours a day, and 22.1 percent claimed that they had put in an average of 17 hours each day (some tasks such as housing evacuees in one's own home could be seen as round the clock or 24 hours a day work). The Instituto in a separate analysis concluded that the volunteers--estimated to be around 1, 700 000 individuals that were 12 years or older--provided considerably over 40 million helping hours (Garnica, personal communication).

b. Characteristics of the volunteers.

After the Mexico City earthquake, certain political circles, some press accounts, and popular discourse suggested that the typical volunteer was a resident of the impacted area, poor, male, and young (for the last, see the United Nations Economic Commission, 1985: 6 where it is said "private citizens, especially young people, organized themselves spontaneously"). On the other hand, other ideologically oriented Mexican observers have argued that the citizenry as a whole volunteered (e.g., the volunteers spanned "the city's disparate social classes", Robinson, Franco, Castrejon and Bernard, 1986: 91). Our data indicates that the volunteering pattern was much more complex than implied in these two points of view.

For example, what was the social class composition of the volunteers? There were some notable differences. For instance, the greatest number of volunteers---46.2 percent---were middle class persons. Somewhat less, 34 percent, were from the lowest socioeconomic strata. The rest of the volunteers---19.8 percent---were upper class individuals. Furthermore, as we shall later discuss, an even more sharply differentiated pattern according to social class is present when these figures are compared to the actual social class distribution of the population as used in the survey by the Instituto.

Likewise, only 4 percent of the volunteers were from immediately devastated neighborhoods with another 12.3 percent from nearby fringe areas surrounding those zones. A majority, 54.4 percent resided far from the centers of destruction. This observation applies to volunteering as a whole; some specific tasks such as the providing of supplies appear to have been more neighborhood based. There was no direct relationship between distance from impacted neighborhoods and search and rescue, but the picture is confounded by the fact that no differentiation was made in the survey between earlier and later search and rescue (there are reasons on other grounds to think that the great majority of the early search and rescue was undertaken by those in the immediate

neighborhoods impacted; see, for example, the case material presented in Durkin et al, 1987: 10).

On the issue of age, only about in ten of all volunteers were 17 years or younger. This too challenges the general impression. In fact our data is only supportive of the idea that volunteers were primarily male; about two of every three volunteers were men.

If we confine our analysis to the smaller individual sample (n=527) rather than the household sample (n=2,966), the same general pattern is present. Men volunteers outnumbered women about two to one. Those within the age category of 18-29 were the most numerous with those below 18 years being the fewest. Those residing further away from impacted neighborhoods were more likely to volunteer than those closer to or within those areas. Thus, the overall pattern of the smaller individual sample also challenges popular notions that volunteers were overwhelmingly poor, the young, and from within impacted areas.

c. Background factors related to volunteering.

What background factors were associated with volunteering? We particularly examined social class background, gender, and age. Consistent with what we have just reported about the social characteristics of the volunteers, these background factors also showed a differentiating pattern.

Using the larger sample again, we found socioeconomic status was positively associated with volunteering. Among the **UC** , 25.3 percent participated although we shall later note that this is differentiated with respect to the task involved. Whereas only about 11.8 percent of the **MC** respondents volunteered, even less (6.2 percent) of **LC** individuals undertook volunteer tasks (this is statistically significant--gamma = .431 P = <.001; r = .158, P = <.001). Put in more general terms, among the general population **LC** individuals were least likely to volunteer, while **UC** persons volunteered the most; those in the **MC** fell in between. In fact, according to our smaller individual sample, individuals from **UC** households were three times as likely to volunteer as those from **LC** households. Similarly, according to an analysis made by the Instituto, **UC** households were disproportionately represented among volunteers whereas **LC** households were considerably below what would have been expected if volunteering had directly reflected the social class distribution of the population in Mexico City (Garnica, personal communication).

Gender also makes a difference overall. About 13.2 of males engaged in volunteer disaster tasks. Only 6.4 percent of females in the population volunteered (gamma = .382, P = <.001).

Age is also significantly related to volunteering. But the relationship is curvilinear. The lowest range of participation

was among those 17 years of age or younger; 11.3 percent of them undertook any disaster-related tasks. However, participation increased dramatically among those 18-29 years of age; 48.1 percent of the individuals in this age category volunteered. Volunteerism was also above average for those 30-44 years of age. About 26.6 of such individuals volunteered. Finally, the rate of volunteering decreased for those over 44 years of age. It drops to 14 percent which however is somewhat above that for the youngest age category in our sample.

In general, volunteering was concentrated most among those with UC and MC background, young adults to middle age individuals, and male persons.

We also examined other possible differentiating background factors for volunteering. These included household distance from impacted localities, educational attainment, occupational status, and kind of volunteer task undertaken. The analysis indicates that these features were not as significant as the social class, gender and age factors we have just discussed. The exception to this was educational background but of course that is highly correlated with social class standing.

Except for those who lived a great distance from the destroyed neighborhoods, distance (as it was estimated in the survey) is not a significant differentiating factor. For those who lived in impacted neighborhoods, near those areas or at a moderate distance, between 14.7 and 15.9 percent volunteered. Among those who lived far from any of the devastated localities, 7.5 percent participated in some volunteered task.

In addition, while there was no significant relationship between occupation and volunteerism, there was a partial positive one between education and volunteering (see Table 3). Those with an incomplete secondary education or less volunteered at rates between 4.1 percent and 10.6 percent. However, among those with complete secondary education or preparatory education (either complete or incomplete) the range was 17.7 percent to 33.9 percent. Those with professional and post graduate training volunteered between 27.7 to 65.1 percent.

In order to determine the independent effects of gender, social class, age, location, occupation and education upon volunteering for earthquake related tasks, a statistical regression analysis was performed. Thus, we found that volunteering is related to social class and education, although the latter appears to be the stronger independent influence. Similarly, gender is strongly related in that men were more likely to participate at the rate of about two to one more than were women. Finally, age is a statistically significant factor.

Table 3: Comparisons Of Volunteers and Non-Volunteers By Educational Levels

Educational Level	Volunteers % N=93	Non-Volunteers % N=434
No schooling	4.1	95.5
Primary, incomplete	10.1	89.9
Primary school complete	5.2	94.8
Secondary, incomplete	10.6	89.4
Secondary school complete	17.7	82.3
Preparatory, incomplete	25.1	74.9
Technical	20.7	79.3
Professional, incomplete	33.8	66.2
Professional school complete	27.7	72.3
Post graduate schooling	65.1	34.9
Total =	17.6	82.4

Chi square = 43,30088

Although there was participation from all social classes and social categories examined, volunteering was most likely to be found among those with substantial education, among those from the higher socioeconomic strata, among males, and among those 18-44 years of age.

Clearly not everyone volunteered; it did not occur across the board. This shows up when looking at volunteering in general. But was there any differentiation in different kinds of volunteer activities? It appears that several factors influenced participating in different earthquake related tasks.

What of these factors influenced who did what? Social class was a factor. Among **UC** volunteers, only 24.6 percent undertook search and rescue, while the corresponding percentages for **MC** and **LC** volunteers were 38.4 percent and 56.6 percent respectively. Conversely, **UC** individuals were more likely to volunteer for the processing of supplies (41.3 percent) than were those from the **MC** (38.4 percent) or the **LC** (22.6 percent). The overall relationship was statistically significant (Chi Square = 22.47563 df=12 sig.=.0325).

However, the strongest observed relationship was between gender and type of volunteered activity. The results are presented in Table 2. Men were significantly more likely to engage in search and rescue and debris clearance than were women (52.3 percent as opposed to 20.5 percent). On the other hand, women were more likely to be involved in the collection and processing of food,

clothing and other supplies (48.6 percent as compared with 26.2 percent of men). Part of this would seem to be reflective of traditional sex role patterns in a Latin American culture, although some of it might also result from the very heavy manual labor requirements of much debris removal and search activity.

A regression analysis was carried out in order to examine the influence of gender, age, socioeconomic status, occupation, education, and location vis-a-vis the most impacted localities within the city, upon the type of help provided by the volunteer. We found no strong, independent and statistically significant relationship to the type of disaster task undertaken.

Likewise, an examination of mass media usage found no direct relationship to degree of volunteerism. That is, heavy media users for instance were not necessarily high on volunteering. In fact, low media users (52.1 percent) were more likely to volunteer than high media users (38.9 percent). Perhaps this simply means that respondents who were involved in doing emergency tasks had less time to hear, see or read mass media accounts of the disaster.

One aspect about the volunteering behavior is not well caught by the above analyses. There were to be sure many individual volunteers, persons who came as individual persons to a scene or a place to provide spontaneous help. However, especially the further away from impact time, many of the volunteers were group volunteers, that is, they came to participate in disaster related tasks as members of particular groups (e.g., as a result of being members of unions or neighborhood associations, which are quite numerous in Mexico City with some governmentally organized and others by political opponents of the regime). In addition, as we described when depicting the general organizational response earlier, there were many volunteer work brigades from different government agencies and bureaucracies. For example, 53 work brigades were formed just in the Ministry of Urban Development and Ecology (Perez, 1987: 5). So in some respect there was as much of a "group" assault as a mass assault on the immediate disaster problems--an observation we drew from other than the survey data (see our later discussion of this issue in chapter 10 on similarities and differences between the United States and Mexico in disaster responses).

Attitudes and Evaluations

a. Problems.

While respondents in the survey mentioned many issues that they thought the Mexican government ought to address immediately after the earthquake, only two problems were mentioned by ten or more percent of those answering. Nearly forty percent (38.3) singled out most of all the problem of housing the homeless--which a number of all respondents (21.1 percent) thought preexisted the earthquake

but was magnified by the disaster. Trailing far behind as the second most mentioned problem was the lack of water and other services in some neighborhoods (13.3 percent).

Now relatively soon after the earthquake, there were some public demonstrations. On September 27, at least several thousand victims from various affected city neighborhoods demonstrated to protest the lack of governmental help and to ask that victims be allowed to use buildings which were still habitable. An even larger number of persons took part in a march on October 2 from the Anthropology Museum to the Independence Monument to demand that there be a rapid response to the problems of victims. But some such public protests may have stemmed less from individual reactions to the consequences of the earthquake as to the opportunity presented by the disaster for opponents of the regime to make a political statement. As an official from one group in such a position said:

> Even before the quake there was a group called the Tenant's Coordination. That was why our response was so fast because we were already organized and we had the neighborhoods coordinated. All these organizations formed the nucleus of the victim's organizations. As soon as the quakes ended, the Coordination called the first march to the courts.

However, given these street demonstrations and what might have been expected because of the magnitude of the disaster, the survey findings are somewhat surprising. A more frequent singling out of a number of earthquake related problems might have been anticipated. (That the findings are not a function just of the fact that the population survey was done within the first three weeks after the earthquake is supported by the observation that a year later, relatively few problems still were mentioned--as we shall discuss in the second section of this part of the report on the 1986 survey results).

There were no social class differences in the focus on the two mentioned problems. But those who scored highest on our victimization index particularly saw the problem of housing the homeless as important (66.1 percent to 36 percent for all others). This is hardly surprising since the most victimized were those who had suffered as a minimum, considerable damage to their own homes. Exposure to mass media stories did not seem to have any direct effect on singling out the homeless problem, except that those who thought television coverage was sensational were more likely to do so.

Given the relatively few problems that were singled out, it is <u>not</u> surprising that overall there was a generally positive assessment of governmental actions (or at least absence of much negative criticisms); of our respondents, 46.3 percent were positive, 47.5

percent were neutral, while only 6.2 percent were negative. Given mass media reports and specific criticisms of particular groups, both Mexican and foreign, this might seem to be a very low figure.

Here again, a very low percentage figure translates into large absolute numbers--over a million residents in the Mexico City area had primarily negative views of the immediate post impact response to the disaster. But from a statistical viewpoint, nevertheless, the great majority of Mexican citizens were <u>not</u> critical of what the government had immediately done generally in responding to the disaster. The concern, discussed earlier under organizational preparations for and response to the earthquake, that victims might become very negative towards the Mexican government is not supported by our survey data.

b. Assessment of five key groups.

We examined how our respondents assessed five of the principal responders in the aftermath of the earthquake: the Mayor's office (DDF), the army, the police, the President of Mexico, and the volunteer groups. (As to the last, no distinction was made in the survey between foreign and domestic volunteers).

Overall what stands out is the general favorable assessment of all the entities--groups or persons. As the following table shows, in general terms, even the most unfavorable viewed group, the army or military, received a 64.1 percent positive evaluation. The most positively viewed were the volunteer groups. Even when the responses were broken down into different dimensions such as appropriateness of response, its timing, how well it was organized, and if it was done in a compassionate way, the great majority of our respondents in all cases were positive or favorable. In fact, as Table 4 shows, the evaluations of specific dimensions did not vary very much from the overall attitude expressed about the responding entities.

Table 4: Negative Attitudes Toward Different Activities of Responders

		%
The police:	Overall negative evaluation	35.9
	Acted in a nonhumanitarian or noncompassionate way	35.7
	Acted inappropriately	35.9
	Acted in a disorganized way	35.8
	Timing of actions were poor	32.5
The military:	Overall negative evaluation	32.1
	Acted in a nonhumanitarian or noncompassionate way	33.8
	Acted inappropriately	35.9
	Acted in a disorganized way	30.1
	Timing of actions were poor	30.0
DDF:	Overall negative evaluation	17.0
	Acted in a nonhumanitarian or noncompassionate way	17.3
	Acted inappropriately	20.6
	Acted in a disorganized way	20.3
	Timing of actions were poor	18.3
President:	Overall negative evaluation	10.5
	Acted in a nonhumanitarian or noncompassionate way	9.2
	Acted inappropriately	14.4
	Acted in a disorganized way	12.5
	Timing of actions were poor	11.1
Volunteers:	Overall negative evaluation	5.2
	Acted in a nonhumanitarian or noncompassionate way	6.0
	Acted inappropriately	6.1
	Acted in a disorganized way	11.0
	Timing of actions were poor	7.7

Clearly the two most negatively viewed groups were the military or army, and the police. They were just about the only organizations who were specifically named by respondents who volunteered names of who acted badly (over one in ten mentioned one or both of these groups). For example, 35.7 percent of our respondents saw the police as being noncompassionate or not humanitarian in their response to the disaster; 35.8 percent perceived them as being disorganized; 32.5 percent thought their timing was poor, and 35.9 percent saw them as not acting in appropriate ways. There was a high correlation between having an unfavorable evaluation on one dimension and on other dimensions. The expressed views about different dimensions of the actions of the military were almost as

unfavorable as that about the police. There was however a substantial drop regarding specific negative views of the DDF, the President, and especially the volunteers. Again, the earlier expressed concern that the President might become the focus of negative views by disaster victims is not supported by our survey data.

c. Background factors.

A variety of simple and complex analyses were made of various background factors which might have influenced attitudes towards the five entities for which an evaluation was requested from respondents. Because of the relatively few negative views that were expressed overall, almost all the cell numbers involved are very low and not subject to any reliable interpretation. But to the extent we could make any analyses, such factors as age, education, gender, occupational status, socioeconomic category, mass media usage, degree of victimization, etc. did not seem to be the prime factors in affecting the unfavorable attitudes expressed.

We particularly attempted to analyze what might be associated with negative attitudes toward the two organizations that were most critically viewed, that is, the military and the police. There were some slight tendencies for men more than women, and LC respondents more than MC ones to be negative on certain matters. For example, 36.1 percent of men compared with 28.1 percent of women viewed the military negatively. Also, heavy media users (45 percent) compared to light media users (27.6 percent) were negative of the military. Not surprisingly those with a more general negative attitude toward what the government had done after the earthquake, tended to be somewhat more negative with respect to specific activities by specific entities. But even these figures might represent more normal sampling fluctuations than actual differences. Overall figures tend to support this interpretation. For example, 31.1 percent of LC respondents, 33.1 percent of MC and 33.9 percent of UC respondents viewed the military in a negative one--essentially there were no social class differences. The negative views of the police are about the same with the respective percentages being 34 percent, 38.4 percent and 35.1 percent.

Those who volunteered did not generally have a more negative attitude than those who did not, with respect to the military or the police (or the President of Mexico). This might suggest that contacts with the police and/or military in the aftermath of the disaster, as could possibly have been the case by volunteers, did not affect the evaluations. On the other hand, volunteers did have a significantly more negative view (at the .01 level) of the Mayor's Office than did nonvolunteers. This suggests that contact with the group might have affected the attitudes of the volunteers. Not surprisingly, volunteers had more favorable views of volunteer groups than did nonvolunteers.

But overall, whatever was responsible for the differences in positive and negative evaluations of what we studied was not particularly accounted for by what we examined. The reasons for the differences laid in other than the primarily demographic dimensions that were available to us for examination. We suspect that the negative views about the military and the police may have resulted more from pre-disaster attitudes rather than a reaction to what those two organizations may or may not have done after the earthquake (this is supported by predisaster studies of the Instituto which found that the military and the police obtained the lowest marks in an "institutional trust index" used in various surveys, Garnica, personal communication).

But even this last suggestion may be too simple an explanation. For example, there was a somewhat curvilinear relationship between mass media usage and negative attitudes toward government organizational activities after the earthquake. Low and high media users tended to be more positive, whereas moderate users were more likely to have an unfavorable view. For example, low media users and high media users evaluated the actions of the Mexican military more unfavorably (15.7 percent and 32.4 percent respectively) than did moderate media users (51.9 percent). Similarly, with respect to appropriateness of police actions; the respective percentages were: low users (16.3 percent), high users (33.5 percent), and moderate users (50.2 percent). Now it is difficult to believe that low and high mass media users saw different content about the military and the police. But the curvilinear relationship found must also be attributable to other factors and beyond a generalized negative views of the two organizations involved.

These were the reported reactions and attitudes in the first three weeks after the earthquake. Did any changes occur in the year subsequent to the disaster? We now turn to a present of our findings of the second survey.