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Chapter 4. REESTABLISHING HOMES AND JOBS: FAMILIES

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In this chapter family recovery from disaster is examined from two different but complementary perspectives. The first is composed of vignettes which characterize selected tendencies in family developments during the recovery period. The recovery process is seen through the eyes of family members first in Managua and then in Rapid City. Then family recovery is described and analyzed in a more descriptive, traditional style. The distribution within the sample of family losses and disruption, resettlement, economic impact, employment, housing lifestyle and satisfaction with life, is spelled out in a systematic fashion for both Rapid City and Managua victim families. Finally, for each city there is a summary of some of the main issues which had impact on the speed and level of family recovery.

VIGNETTES: MANAGUA AND RAPID CITY

Managua: Low-Income Family

> This is a composite story. It is designed to follow certain central tendencies found in the survey data. Portions of it are direct quotes or paraphrasing from taped interviews with families in Managua, selected to put together a representative story but to avoid identification of any specific family. It represents families in the C$500-C$1000 per month income category (US $71-143).

The earthquake occurred on the 23rd of December around 12:30 in the morning. That's the time of year when everyone is buying for Christmas and working to buy for Christmas, so I had worked late like many other people. I worked for a tailor and we had been working late every night in order to get the work out. Consequently, the night of the earthquake, I had gone to bed around 11:00 or 11:30 and I must have just gone to sleep when the tremor occurred.

The tremor was like a wave. It shook us and it felt as if we were sailing. My wife and I found ourselves on the flood with debris on us. You know, that was the tremor that knocked all of Managua down. Thanks to God, none of us--my wife and four children--were hurt. The house was shaking and we had trouble getting up. I think the shaking lasted about 10 seconds, but it seemed longer. I got up and got the youngest child, and I told my wife to get the other three children. There was a great deal of confusion and dust and we could hear people screaming and crying in the street.

We made our way from the back room where we sleep. We had two rooms, but we all slept in the one in the back. The door was jammed but I was able to kick it open. I was so frightened that I didn't even realize I didn't have any shoes on. We were all barefooted and I only had my pants on. We just went out into the street with what little we could get in the darkness, like everybody else.

The ground was still shaking and we were very frightened. We could see that all the houses in front of ours were down. Ours and the new one to our right were the only ones standing on our end of the block. We lived in Barrio de Barrios and most of that area of town was destroyed. When they put the fence up to keep people out of the downtown area, it was only a few blocks from where we lived. Our house was made of wood and it was able to take the first tremor. But the second tremor knocked it down. All the ones made of cinder block fell, and the house to our left fell against our house, so I guess that weakened it. As we stood outside our house I felt very fortunate because we were not injured and because our house was still up. But then the next tremor came and we became--like everyone else-homeless.

We had run into the street after the second tremor, but eventually moved back to sit on the curb along with many of our neighbors. It was dark and the only light that could be seen was from some fire in the center of town. The electricity wires were lying in the streets, but I think the electricity company pulled the switch becaus I checked a wire and it didn't have any electricity. But we were afraid to try to go anywhere. After awhile the children complained that they were cold so I went into the rubble and found a sheet; we covered ourselves with that. We also discovered the next day that the youngest child had become deaf from all the dust that got into her ears, and we have had to make many trips to the doctor and have spent much money on medicine. It took about eighteen months to clear up the infection and for her hearing to return. She is alright that way now, but very quiet during the day and often crying in the night.

In the morning everyone began trying to get their valuables out. I took out my sewing machine and clients' clothing--I had been doing some work at home. I feared something else might happen, and I hoped I could still sell the clothes if the people they were made for didn't come for them. My wife's brother came by to see if we were alright. His mother-in-law had been killed. Their house was downtown, just a little east of the National Palace, and he was busy getting their things out of there because the National Guard was telling them they had to leave. They were going to take the mother and go to Jinotepe to bury her and stay with his wife's relatives there.

Later in the morning I went to look for a friend to see if he could transport me to the San Judas neighborhood south of town. I had remembered about a house there which our *comadre* (a woman who is a godmother to one of the children) had. We've known each other for some time. She used to live in Barrio de Barrios too, but had moved to San Judas only a few months before the earthquake.

I went to see her to see if we could live with her for a few days because we didn't have anywhere to go, since I have no relatives in Managua, and my wife's brother was leaving because his house was destroyed and the army wouldn't let him live on the lot where it was. I thought there might be more work in Managua and even though the government was telling everybody to leave, we knew this woman in San Judas.

She said of course we could live there awhile, so I went by where

El Reformatorio used to be to look for a friend who has a truck and I asked him if he could move me because my house had collapsed. He said yes, except that at the moment he had lots of work. He was moving inventory from two stores until the next day. Since he was going to move me, I started to help him so that he could finish his job a lot sooner. Then that same night he moved me to San Judas. At that time it was difficult to find a vehicle, so I did all of my traveling on foot. Actually there wasn't any transportation for two or three days.

We stayed with our *comadre* in San Judas for four months. At first, we--16 of us--existed on the food they were giving for *damnificados* (disaster victims). When they (the government) first made the survey, we thought they were going to give sufficient food for the number of people in the house (the house is a big room subdivided into three distinct areas, or rooms, by sheets), but they gave so little. We'd get about 13 small potatoes, five pounds of corn and two pounds of powdered milk daily. Now and then they'd give us beans and rice instead of corn. Oh, and the chicken they gave, they were a joke. They were so small we couldn't eat them. For this we had to stand in line from 5:00 in the morning until 11:00 or 12:00 in the afternoon. If we were unlucky and got there late (to the distribution point), we'd maybe just get a few potatoes and a cup of corn, or whatever was left.

In those first days in San Judas, I went out to look for my boss, the tailor I worked for. I went there on Sunday (to the tailor shop) to get my pay check--we always get paid on Saturdays--and to see what we were going to do. Two of us worked for my boss. He was trying to salvage some of the clients' clothing and the sewing machines. He lived by the post office in a building where he rented a room upstairs where he lived, and a room downstairs where he had the tailor shop. His house and shop were totally destroyed. When I got there on Sunday, my co-worker was there and we talked with the boss. He was very depressed, understandably so. He gave us 30 cordobas each because the clients who were to pay him hadn't come--and God only knows if they will ever pick up their clothing--and he promised to pay us our salaries whenever he collects from his clients. I felt sorry for him. He had all his money invested in materials and machinery. He had just gotten a new sewing machine and it was completely destroyed. We thanked him and left. I haven't seen him since then. He had great plans for the future and I guess I did too. I had bought this used sewing machine six months before the earthquake.

During these four months in San Judas I didn't work. That is to say, I didn't have a full time job. I did odd jobs, anything: carpeting and tailoring--making shirts or pairs of pants whenever the opportunity presented itself. Nobody had money then; they still don't. I would travel all over Managua looking for work. Several times I went to Masaya to see if I could get a job with a tailor there, but they wouldn't have us. The tailors in Masaya turned many of us down. We couldn't get work, except the work for food. The government was organizing work crews: men, women, and children; young or old; sick or well--it didn't matter. They would put these crews to work cleaning the city. I didn't take this job--many people didn't--I was not physically able to do that kind of work and they gave very little food for the work one did.

After the four months with our *comadre* we moved to Bella Cruz to live with my mother-in-law. Fortunately we could because we were beginning to have trouble with my *comadre* and the others in the house. Imagine all 16 of us living in one little place only big enough for eight people. It was impossible. There was never enough food for all of us, and everyday it seemed we got on each others' nerves. So, as soon as my mother-in-law was able to offer us a room we moved. It's a little far out here, but we don't have another choice.

We had owned the house we lived in over there before the earthquake, but we rented the land that we had built it on and the landlord, who had lived in a nice house in Altamira de Este, had decided to rent his house to someone wealthy and wanted the lot to build himself a little house to live in while he rented his big house.

When we moved we were able to take some of the boards, but before we could get back to get the rest of the furniture, the rest of the boards, and the toilet and things like that, they had disappeared. When we moved in with our *comadre*, I sold the boards but I wish I hadn't. The price of lumber has more than doubled and now I can't afford to buy anymore. It would be nice if we could build another little room on here where we live now, but it is just not possible. We still owe money for the few boards we did buy. I borrowed it from the credit union at the factory, but the interest is very high and I don't want to borrow anymore.

After we moved here, I got the job with the textile factory. They were having trouble with their workers and the union. I believe the workers were claiming they earned very little and they went on strike. The factory fired the strikers and I got a job. All the personnel there is new. The majority of the old workers were fired.

I would like to move closer to my work, but I can't. It costs a lot to live in this neighborhood because it's so far, too far out, and the transportation is expensive. I work over at Kilometer 7 and a half, on the North Highway. In a sense I go from pole to pole, so that comes out being real far for me and complicated. I spend around 100 cordobas or so in a month on transportation. This is hard on me, but if I go to Managua to live I would have to pay 300 cordobas or 400 cordobas for rent. There aren't any houses for 200 cordobas.

To get to my job, I leave at 5:30 in the morning, at 6:00 when I'm late. I begin to work at 8:00 and I finish at 5:30. I end up taking the bus at 7:30 many times, because the buses are very crowded at 5:30 and often I need to do shopping or other errands while I am in town. There are only a few *pulperias* in Bella Cruz or the OPEN, and their prices are sometimes higher than in the Mercado Oriental. I can buy just about anything I need in the stores that people have set up in the houses in Ciudad Jardin, next to the Mercado Oriental and it is not very far from the North Highway.

As for grocery shopping, we only do that once a week, on payday. The day that I am paid I go to buy everything at once to have here in Bella Cruz. My wife seldom leaves the neighborhood since the bus costs money and I have to come to town everyday anyway for work. At the market I get some vegetables and the rice, beans, sugar and spaghetti. She does buy bread, tomatoes, and spices here in the barrio, but it is cheaper to buy the other things at the market, and they will last a week.

Transportation is a problem in terms of marketing, however. If you bring a big basket from the market you also have to pay the bus driver an extra two cordobas for it. It is not like it used to be before the earthquake. Then we could walk to the Mercado Central from our house.

There is also the problem that there are too few buses for this area. The most they run are five or six. These are too few for this neighborhood. I think there are more than 50,000 people living here. You should see us trying to leave here in the morning. One has to go hanging from the buses because they are so crowded, but necessity makes one do that, one has to leave for work.

We'd like to move to be closer to my work and to the market, but housing in Managua is too expensive. Now we've built this little *ranchito* (humble dwelling) here in front of my mother-in-law's house, and I don't know how long we will be here. It is not like our other house, which had two rooms and a toilet. Here we cook by the back door. At night we move the chairs and put the cots in the middle to sleep. There is a latrine in the back which we share with my wife's parents. There is a spigot in the back yard, but neither my wife's parents nor we have a regular shower like we had before. And the electricity bill is getting so high that I wonder if we will be able to pay it after awhile, even though we have only the two light bulbs and this radio. It is probably just as well that the television set was ruined in the earthquake, because it would just use more electricity, but we do miss having it.

I used to go to some of the sports events at the stadium and we had the television which my wife liked. But the stadium did not open again for a long time, and now it is too far to go into town to attend things there, or to go to a movie once in awhile, even if we could spare the money to go. Since I leave for work before the light and come home after the dark, Sunday is the only day I have free anyway. I usually spend it here with my children or sometimes I visit a friend. My wife doesn't know people here in this barrio, and she seldom leaves the house except to make the little purchases of things she needs for cooking that day.

At least the school is only a few blocks from here. It is a government school and it is free. Of course I have to get the pencils and notebooks for the three children who are old enough to go, and there is another little charge. It is better not to ask what it is for--I guess for the people who clean the school, or something

I don't suppose Managua will ever be the same again. At the rate they are going it will be 25 years before they get it rebuilt. I hear there are a lot of stores out to the south and southeast of town, but I haven't had time to go look at anything. It would be nice if the government could build some houses that those of scarce resources, like we are, could afford, but that is for the government to decide. I used to think that it would only take a year or so to get back to how we used to live, since I have my skill as a tailor, but the prices of everything keep rising and my salary has only been raised once. Now I am not sure what will happen. I am happy that we are alive and have this little *ranchito* and that I have a job. I guess others are not so fortunate. When I can afford to move back into Managua, things will get better, God willing.

Managua: Middle-Income Family

This composite story represents families in the prequake C$2000-C$3000 per month income category (US $286-429).

As it was the Christmas season, we had a few close friends in and were listening to music and talking. When the first tremor occurred, much plaster was knocked off our walls. The really strong tremor after midnight was the one that caused our roof and one wall to collapse, but fortunately we had gone out in the street after our friends left to check on their homes and children. We had a rented house made of taquezal near the gas station on Calle Roosevelt, in what used to be the downtown part of Managua.

We were too frightened to go back inside the house after it collapsed, so when it got light, we started looking for a ride to Masaya, where my husband had an older cousin. Eventually we found a woman with a car who was taking some salvaged household goods to Masaya for a friend of hers. She let us squeeze in with them and only charged us C$70 (US $10). Luckily my husband had received his Christmas bonus from the bank where he works, so we had cash with us. We left Managua with only the things we had on. Later my husband went back to check the house, but everything had been stolen, including the toilet, doorknobs and door. The National Guard had said they would guard the area, and had even put a big barbed wire fence around it, but I guess the poor people got there first.

My husband's cousin had a fairly large house in Masaya, although he worked in Managua as a lawyer. Since the office he had shared with another lawyer was destroyed and he was having trouble finding enough work, we offered to pay him some rent. They are much older than us, and have five daughters. It turned out to be fortunate that we decided to go to Masaya, since the bank my husband works for established its office in Masaya within a few days after the earthquake. Eventually I was able to get a job teaching school in the afternoon in Masaya.

About five months after we moved in with the cousin, his former co-worker, a licensed lawyer, asked if he and his family could move in for a while. He had been buying a house in a housing project built by a large construction company and savings and loan bank. The houses in the project had been damaged and many, such as theirs, were not habitable. There was a problem with the insurance settlement because all the houses were insured by the same company, and there was some question about the company's solvency. This family had been paying C$470 (US $68) a month for three years, and had originally made a downpayment of C$3500 (US $500). Since they couldn't live in the house, he had rented another. It wasn't even as nice as his project house, but the landlord had increased the rent after the earthquake and he was paying C$600 (US $86) for a house that used to rent for C$400. He was also trying to keep up payments on his damaged house as the company threatened to repossess it if he didn't. He had also heard that since the insurance rates would probably go up, the monthly payment on the house would probably go up too.

My husband's cousin let him move in for free, but his family thought they were better than the cousin's family and soon there was much trouble. His wife hated life in Masaya and was always complaining about not being able to get her hair done properly, or about the muddy streets, or something like that. She also complained about the life style of the cousin's family, and the fact that they could no longer afford to buy nice soap or toilet paper. After a couple of months, this lawyer heard from a friend about a house for rent in Ciudad Jardin. It was renting for C$1000 (US $143), in a neighborhood where a house renting for as much as C$600 would have been shocking before the earthquake! It had enough room for him to have his law office in it, though, and was in a very busy and active part of the city since the center was gone. He decided to stop paying on his other house and let the company repossess it, and to start over when he got enough money and knew whether that would be a good neighborhood to live in in a few years. It was just too hard on them to try to share a house with other families and to be so far from the capital city.

After the earthquake, people couldn't afford as much legal work along the lines of divorces and other types of disputes, and some types of legal work had been suspended altogether by the government. So there wasn't much work for lawyers, and the cousin's friend had decided to do all the work himself and no longer share it. My husband's cousin can't actually practice law because he hasn't passed the bar examination, and he had only been working with a special permit which allowed him to assist a certified lawyer. With so many lawyers virtually out of work anyway, it became very difficult for him to find someone to work with. He just had to go down to the justice office in Managua everyday and hope for a client that didn't have a lawyer yet.

Because of his sporadic and low income since the earthquake, the cousin has had to drop out of the lawyers' association because he can't pay his dues. And he has had to resign his position as president of the civic club in Masaya, because he and his wife couldn't afford to attend the social activities. Instead of turning down invitations to social events, they've chosen to resign. Such associations and clubs are a good place to make business contacts, so it is a shame he had to resign. They could ask one of their influential friends for help, but they find it too embarrassing to reveal the extent of their troubles to their friends.

The three daughters in secondary school had to change from a private school to the public school in Masaya, which only has small fees for attending, compared to the monthly tuition at the private school. One other girl was attending the university but had to drop out. Both of the girls with high school diplomas are trying to find work, but there just isn't anything available for girls from a good family like this, and who have no special training such as typing. The family has cut down on any extra expenditures, and frequently has to buy things on credit if the husband hasn't had any work that week. This embarrasses the wife and causes her to worry about paying it back, but she is a strong person and does what she can. From time to time they are able to sell fruit from a small piece of land they own near Granada and that helps.

We lived with the cousin for about a year, or until six months ago. Living in Masaya was not too bad for us, except when the cousin's friend was in the house. Then we just tried to keep out of everyone's way. The bank where my husband worked had maintained its office in Masaya for almost seven months, but then reopened again in Managua. My husband had to begin commuting. He would get home at ten at night or later when he had started his studies again at the University. He would go to class in the evening; it was getting very tiring for him to return to Masaya every night at ten, so we began to think about returning to Managua.

Our former landlord had told us that he intended to rebuild where our former house had been, and that he would like us to rent from him again when he got it ready. However, it eventually became obvious that the area was to remain fenced off for a very long time, and even now, a year and a half after the earthquake, the government has not told landowners in that area what will become of their property. He told us he is continuing to pay the taxes on it in hopes that when the government does make a decision he will be able to claim that it has at least as much value as the tax assessment implies, or perhaps even more. Other persons have quit paying taxes on their land in the downtown, as they have other expenditures to worry about, and no assurance that the land will ever be available again or that they will ever be paid for it. One wonders who will gain from these decisons--our landlord who had continued to pay his taxes, or the people who did not waste any further money and put their money to other uses soon after the earthquake.

We had not been thinking of buying a house since we had only been married two years and were waiting to get better established. However, since the earthquake renting has become so expensive in Managua and suitable houses so difficult to find, that we began to consider it. My husband inquired at the bank where he worked and found that they were willing to make loans to their own employees for purposes of repairing or constructing their own homes. About eight months ago we got a loan to buy this property and to build a house. We spent what spare time we had for about a month trying to locate a piece of property in a neighborhood that we thought would be safe and suitable for the family we hope to have. I was pregnant at the time of the earthquake so we already have one little girl. This neighborhood was almost totally destroyed, so most of the houses have been demolished as you can see by all the vacant lots around us. There is a private school across the street and the family living next to it is very nice. The family in the new house on the corner also seems very nice, although we are fairly retiring and have not made any great effort to make friends. My mother-in-law and her mother have bought the lot next to ours and that house being constructed there is hers. She had gone to Costa Rica immediately after the earthquake, but she had a good job with the social security administration and it was not closed down for more than a few days while it found a new building to set up in.

The process of starting new on building a house has been a series of problems and new experiences for us. Now we can barely afford anything. We have reduced our expenditures wherever possible and sometimes have bought expensive items, such as furniture, on credit. It wasn't like that before the earthquake. Before we had two maids, and now only one, even though I have a child now. We used to pay cash for everything, but now we're just able to pay the bank loan and my husband's tuition. He can't even afford to buy gas for the car sometimes.

As I was saying, we got the loan for this house from the bank where my husband works. He borrowed C$50,000 (US $7143), and we bought this piece of land for C$32,000 (US $4571). That took most of his loan, but the bank agreed to loan me C$35,000, which we were then able to use to buy materials to construct this house. My husband had to go to the president of the bank to get the loan approved; the president knows my mother-in-law, so that helped. Everything here is done by influence. Since I also worked teaching school, that helped too.

My husband took his month's vacation time in order to get the building permit and see to the hiring of a builder and workers to start the house. He had to go to the different government agencies and talk with the right people and give a little money under the table to get things done quickly for us: to get the title to the property cleared, to get our design approved, and to get the building permit. Since we were building with wood, that helped to get it approved sooner.

The builder has continued to be a problem to us. It is difficult to find honest ones these days. The first people that we hired to do the foundation asked for a month's salary, then disappeared after two weeks. We found another contractor on a recommendation from a friend. Since I had to commute to and from my teaching job in Masaya at the time, I would come to Managua in the mornings and go home to Masaya at noon. This gave the construction workers opportunity to do as they pleased. Since we weren't around to supervise, the workers would ask for more building materials than they needed; we just assumed the materials were needed, so we bought them what they asked for. However, one weekend we were here looking over the construction and we were out in the yard when a man came by to buy some lumber. We told him we didn't sell any of our materials, but he said he had bought them here before. Then we realized what the workers had been doing.

The next day we brought up the matter with the man who was in charge of the work crew. He swore that the men who had done it had been fired. Of course, we couldn't verify that because we didn't really know the work crew, so we just marked it down as a loss. That little episode was not the last of it. Just before they finished the work, they broke into a closet and stole the money we had set aside to pay them the final week. Consequently, we weren't able to finish the house. As you can see, we still have the inside to finish; when that will be we don't know. For the moment we are in debt to the bank, and the price of building materials has more than doubled since we started the house. I guess we were just lucky we decided to build when we did. Otherwise we couldn't afford to build even this humble wooden house.

We've been lucky in another respect. We have a friend in a government agency who told us not to build near the street because the government is probably going to widen some streets. If a person has built near the street and the government decides to widen the street, I suppose they will just tear down the house. A dilemma in all this is that the government hasn't decided--or at least hasn't made it public--which streets are to be widened. Many people live in established neighborhoods and don't have that much room to build. For example, you can see that the school and the house across from us are repaired buildings and are right on the sidewalk; what little space they have is beside and behind them.

I guess we just feel fortunate that we were not affected any more by the earthquake. My mother, who had lived in Managua for many years, lost everything. She was visiting with relatives in another city for the Christmas holidays, and became very upset when she rushed back to the city to find her house and belongings gone and some of her friends dead. We sent her back to the east coast to live with her sister in the town we originally came from. We hope she will be able to settle down to a more tranquil and happier life where she can't see the evidence of the damage anymore. Anyway, we couldn't afford to keep her here.

We have never been very social, so now we don't find it much of a change to spend what leisure time we have just reading in the evenings and occasionally going to a movie. My husband usually has to study much of his spare time anyway. I now have a teaching job in Managua so I don't have to go to Masaya anymore, for which I am grateful both in respect to the time spent getting there and the money for the bus fare.

Although this place is not as close to a market as the house we rented before the earthquake, the Oriental Market is not too far from here, and I can take the bus over and a taxi back if I am buying a lot of things. It has gotten so crowded and dirty that I don't like to go, and sometimes I send the maid instead. I hear that they are going to reopen the supermarket in Ciudad Jardin that was sacked and burned after the quake, but I am not sure we will be able to shop there. There are enough street vendors passing through this neighborhood now that it is possible to get fruits and vegetables daily from them.

I have seen several of the new shopping centers, but I don't know who is buying things in them. We certainly cannot afford to shop there very often. I have bought some baby clothes and a few small things for the house. The furniture we bought on credit from Sears. One wonders if it might not have been better to have built more housing and fewer of these commercial centers, but without knowing what will be the future plan for the city, I guess those people in private enterprise who are building the shopping centers just don't want to risk putting up large housing projects. Or maybe there is some other reason I don't know about.

My husband talks with many people at the bank and with other students at the University. He feels that those of scarce resources probably cannot afford to buy a house anyway, nor can many people like us, unless their economic situation is stable or expanding. To buy a house is foolish since you risk losing it, and right now you don't even know whether or not it will be close to certain activities in the city. My husband has a job and knows where it will be located so we felt we could build but it appears that many other people are still sharing houses or renting unsatisfactory ones until they have a better job or their salaries catch up with the increase in the cost of living. With meat having more than doubled in price since the earthquake, and even rice and beans costing twice as much, one wonders when this will ever be possible for some. In the primary school where I teach many children come to school without having had more than a cup of coffee for breakfast, and often without even a notebook and a pencil, because they cannot afford them. It is no wonder so many never go beyond the third or fourth grade. But then this was true before the earthquake, too.

As for us, we are living a fairly comfortable life now and we like our new house, although we will be more satisfied when it is completed and we will be proud to have in friends occasionally. We are fairly optimistic about the future; we go little by little paying off our loan to the bank, even though that won't be finished for 15 years. Our main fear is that inflation will continue to get so bad that we will not be able to keep up on the payments. Even though we are not as satisfied with our lives as we were before the earthquake when we had no financial worries, I feel we will eventually come to have an even better standard of living than we had then, even if we have to live a fairly restricted life for the next few years.

Rapid City

> This is a composite story of an elderly middle-class couple in Rapid City. It is abstracted from interviews of several families and their respective experiences in the flood. It represents a general sequence of events that many victim families went through in Rapid City.

John and Margaret Billings lived in their wood frame house in the 900 block of LaCrosse for nearly 40 years. Mr. Billings, 65 years old, was well aware that Rapid Creek, several blocks away, was capable of flooding low-lying areas. But of its ability to send floodwaters raging through his house, he had no idea.

The evening of June 9, 1972, the rain had been persistent with a continuous rumbling of thunder. When the Billings went to bed that night, they were not aware of the devastation that was occurring a few blocks away. They had not watched television that evening and had heard no evacuation warnings.

At 11:00 p.m., over the rumbling and downpour, they became aware of a frantic pounding. Mr. Billings got up and found his out-of-breath nephew at the door. He told Mr. Billings that there was a wall of water coming down the street. The water was already a foot deep at their home. Mr. Billings rushed back into the house, grabbing his car key, his wallet and coat. Mrs. Billings, who is partially crippled, got out of bed at her husband's urging, picked up her pocketbook and coat, and moved for the door. Mr. Billings ran into the living room, snatched up the family cat, and dashed to his pickup where his wife was. He immediately started the truck and headed for the hill on East North Street. The muddy surging torrent was a hundred yards short of sweeping the Billings to their deaths. Their home, however, took the full brunt of the flood.

The dislocated family drove to a bank parking lot on East North Street. After making several phone calls to their families to check on them, they spent the night in their camper. The following morning they were found by their nephew who had located a room for them in the Horseshoe Motel. That day Mr. Billings attempted to walk back to his home, but was turned back by rescue workers and the National Guard. He got close enough to see that there was precious little left of his old neighborhood. Trees and houses lay twisted crazily and a layer of mud lay over everything. Most crosstown bridges were destroyed.

Later that day Mr. Billings called the bank where he worked as a janitor to inform his boss of what happened. He was excused from work with pay for ten days so he could get things back to some semblance of order. The Billings' nephew returned that afternoon with the news that a dear friend of Mrs. Billings had been killed in the flash flood. The friend, who was quite old, lived a few blocks from the Billings. Their nephew said that she simply refused to leave her home when asked to do so by the police. She locked them out and so they finally had to leave her. The next morning all that was found of her home was the foundation. Such news increased the trauma of the event for Mrs. Billings.

In the turmoil of the next two weeks, the Billings were able to survey the damage of their old neighborhood. Their $25,000 home was nearly half destroyed and the rest was coated deeply in river mud and debris. Their daughter and her family offered their help in making the house liveable.

In the meantime, the Billings went to live in their camper at the fairground. Mr. Billings' $6,000 yearly salary could not sustain them at the motel for more than ten days. He had returned to work in the evenings and spent his days clearing the debris out of his house with the help of some relatives.

On June 25, their house was cleaned up enough for their return. Electricity had been restored, windows were replaced, and the damaged section was boarded up. Mr. Billings had spent $200 patching up the house and making it liveable. Because of this expense, he would have to forego his vacation. The house was still dirty and now was cramped. The neighborhood didn't resemble its former state; few neighbors remained, yards and gardens were obliterated, and many houses no longer existed. It was little comfort to be back, and the Billings made plans for moving.

They found out that their house was to be acquired by the Urban Renewal Authority as part of the floodway clearance. This made them eligible for Federal funds. In addition to the $300 cash they received from the Rapid City Area Disaster Foundation for household goods, they were to get $15,000 for their old home. It was several months before their home was acquired and the time was spent, in large measure, cleaning up. The leisure time of the old couple was completely taken up by the drudgery of cleaning the detritus of the river out of their house.

In December, through the services of a realtor, they found a home in the 1300 block of East Ohio. They paid for the house completely with money they received from the Urban Renewal Authority for their old home and for relocation benefits. Their new house was somewhat smaller than their preflood home, but spacious in comparison to the remnant they lived in for nearly six months. The taxes on their new home were slightly higher, but this presented no financial problems. The neighborhood was a "younger" one than what they had been used to. There were more children and dogs, and few people of their age. They still managed to keep in touch with some of their neighbors but many had moved too far away to visit conveniently. Mrs. Billings no longer shopped at her old neighborhood stores. Mr. Billings was closer to work, but this was little consolation in view of his attachment to the old neighborhood.

Both were thankful that their new home was far from the creek, although they now carried flood insurance. Mrs. Billings remained nervous about rainstorms, and would call her husband at work if it began to storm. Adjusting to the new neighborhood would take a long time, as would getting used to a new home after living in the old one for 40 years.

A Native American Vignette

This is a composite story of the experiences of Native Americans during and after the Rapid City Flood.

The rain had started late in the afternoon. Nelson White Bear, a 67-year old Rosebud Sioux, was watching TV as the downpour continued into the evening. The roof of his small, rented woodframe house was leaking in places. Occasional flood warnings were broadcast, but since they were in reference to mountainous areas west of Rapid City, White Bear was not alarmed. However, as the evening wore on, the rain intensified and he became aware of the sound of the creek running. Being more than a block away from the creek, this was a sound he could not normally hear.

White Bear dozed off, but around 10:00 p.m., he was awakened by a honking horn. A police cruiser was in the street broadcasting over a bullhorn for all residents to evacuate to higher ground. Many of his neighbors were already scrambling for their cars through knee-deep water. He hesitated momentarily, and then grabbed his coat and began to make his way to his old car. He heard a loud thump as a large piece of floating debris hit his home. As he was about to enter his car, he became aware of the piteous howl of his cat which he had forgotten inside the house. The water was rising rapidly, and he couldn't move easily back to the house. The cat's meowing continued as White Bear got into his car and attempted to start it. The car refused to start, and he felt it begin to bob in the water. He forced the door open, fought for footing, and began wading towards higher ground. A bright flash lit the night as a transformer blew out, and suddenly the neighborhood was pitch black, save for occasional flashes of lightning.

White Bear struggled through the water, hearing screams for help from neighbors stranded in trees. He continued towards some head-lights he saw ahead. When he turned to look back at his neighborhood, he saw repeated explosions as gas lines severed and ignited. Weary and cold, he reached the vehicle whose lights he had seen. Two merchant police in a 4-wheel drive vehicle gave him a ride to an emergency shelter.

Having no family in town, White Bear was going to call his daughter in Pine Ridge to tell her of his plight. However, before he had a chance to do so, the phones went out. It would be two days before he would reach her, due to the massive overloads on the phone system. He rested in the emergency center as the storm raged on. He was quite uncomfortable being the only Native American there, and soon sought out an elderly friend whom he had met while participating in a free meal program for "Senior Indians." White Bear's friend, whose small house was on high ground, gave him a place to stay for the night. White Bear was extremely distressed by the disaster, and could not be calmed down by his friend.

In the morning White Bear returned to his old neighborhood. After receiving clearance from a National Guardsman, he searched despondently through the muddy, splintered ruins of his former home. He called for his cat, but held no hope of finding it alive. No house stood for a block in any direction. He talked with surviving neighbors, and heard of the deaths of many of his friends. The flood had inflicted disproportionate losses on the 3000-member Native American community in Rapid City. Many Native Americans lived along the creek in poorly built homes that disintegrated in the flood. In all, 33 Native Americans were killed and 268 of their homes were destroyed.

White Bear continued to live with his friend, sleeping on the couch. He received clothes from the Red Cross, and ate free meals at a high school cafeteria. The enormity of his losses came to preoccupy him more and more. The delicate balance between his pensioned income and his living expenses had been severely disrupted, as had his familiar surroundings.

White Bear contacted the Bureau of Indian Affairs, and was referred to several other agencies for aid. He was hesitant to contact some of these agencies because he felt that they were for "white people". He received a $50 cash grant from the Disaster Foundation, which he used to buy clothes for himself. The meal program for Senior Indians was once again under way, and his emotional state improved somewhat when he was with friends again. When the meal program was moved to the Community Service Center, located in the floodplain, White Bear and others stopped participating for religious reasons. They would not go to the floodplain until it had been prayed for by a Sioux medicine man.

White Bear was contacted by an Indian Community Action Program (CAP) worker who filled him in on the kinds of aid he could receive from community agencies. He declined this aid, and also declined the CAP worker's offer to procure him mental health counseling. Although he was eligible for a HUD trailer, he decided to accept his daughter's offer of going to live with her. With his neighborhood gone, many of his friends dead, and his possessions gone, he felt it was best to return to a reservation. He had been comfortable in his small home with his cat, and was not looking forward to living in a crowded home with several others.

White Bear's distraught emotional state resulted in loss of sleep and lack of appetite. Two months after the flood, he had lost 20 pounds and concerned CAP workers who kept track of him and other Native American flood victims. He continued to live with his friend, taking frequent walks into his old neighborhood in hopes of finding his cat. Little else mattered.

In October he left his friend and went to the Pine Ridge reservation. Although his daughter's house was crowded, he was accorded a rightful place in the family. He never regained his lost weight, and never spoke of that night to his family. His sleep was often interrupted by nightmares of the sounds of his cat on that June night in 1972.

Familial Coping in Rapid City

When a community is devastated by a natural disaster, attempts to restore and recover begin almost immediately. In order to examine the various aspects of recovery among lower-middle and middle class families, Rapid City, South Dakota, was chosen as a site for study. On June 9, 1972, in the course of a few short hours, a violent rainstorm dumped upwards of 14 inches of rain in the hills to the west of Rapid City. The flash flood that cascaded out of the Black Hills and through the heart of the city left 238 dead, and thousands homeless.

Methodology

Families whose homes were damaged or destroyed by the flood were selected at random, using a scientific sampling technique. One hundred twenty-five families (hereafter referred to as the victim sample) were selected for interviewing. These families were interviewed three times over a two-year period (July, 1972; June, 1973; June, 1974). (The first interview focused on response to flood warnings, a separate research effort (Mileti, 1974).) For this study victim families were queried on a number of subjects, including occupational history of wage earner, flood experiences of the families, and the degree of impact the flood had on the victim's homes and possessions.

In addition to victim families, a similar group of 70 families which did not receive any direct damage from the flood was selected and interviewed twice over the same period (July, 1972; August, 1974). Interviews covered the same topics as the victim family interviews, although interview forms were tailored to the general characteristics of this particular group of respondents. The inclusion of this group of families (hereafter called the control sample) is to provide baseline information for comparison with the victim sample. When changes are observed in the victim families, but not in the control sample, we may be confident that such changes are generally a result of the effects of the flood and not just changes that we might expect of all Rapid City families over that time period.

In addition to interviews with families, key decision-makers and community influentials were interviewed twice concerning important community issues that arose in Rapid City over the course of reconstruction. In the latter part of this section we will examine to what degree these issues and the decisions made about them have affected family recovery in Rapid City.

Measures of Family Recovery

In Chapter 2 a generalized model of family recovery was presented. Here now is the first opportunity to see the utility of that framework for explicating the complex set of events surrounding the recovery of victim families.

Loss and disruption--The waters of the Rapid City flood were quite capricious. In the victim sample, the range of losses for families was from virtually nothing to the total destruction of home and contents. In this section a brief description will be furnished of the loss and disruption suffered by the victim group.

In the families sampled there were a total of 370 persons. The most common family size was two, reflecting the relatively old age of many in the sample (the importance of age will be addressed later). One family interviewed reported the death of a member in the flood, and seven persons in these families sustained injuries. In only two cases, however, did these injuries result in any loss of employment. The longest duration of unemployment was two months. In terms of injuries and deaths, the direct impact of the flood was relatively minimal on the victim sample, although more than three-fourths said they knew at least one person killed in the flood.

One hundred and eight families (86%) reported that their homes were *structurally* damaged from the flood; 10% sustained over $20,000 in damages to their homes. One-fourth of those interviewed had their homes destroyed by the flood. The other major types of losses were those of furnishings, personal possessions, and cars. One-third of the victim families lost 75%, or more, of their household furnishings (from $2000 to $5000 in value). While one-fourth lost no personal possessions, another fourth lost 75% or more. This distribution probably reflects the preimpact warning many families received. Those with the most warning could gather together personal effects before evacuating. Others evacuated right in front of the rising waters of Rapid Creek and had no time to take valuables with them. One-third of the victims had at least one car destroyed.

Twenty-nine families (23%) reported that at least one member had suffered some emotional distress in the wake of the catastrophe. Much of the emotional distress was in the form of fear of thunderstorms and related weather phenomena. In comparison, only seven families (10%) in the control sample reported any emotional distress among members.

Aid to flood victims made available through Federal, state, and local sources was utilized to some degree by almost all persons in the victim sample. Two-thirds of those interviewed received aid for housing; the preponderance of these received it from HUD and the SBA. Eighty-five families (68%) received aid to help replace household furnishings lost in the flood. Sixty-five families were given money to replace lost personal possessions. The Red Cross and several local civic organizations gave much of this aid. In addition, over 75% of the victim families received food stamps after the flood. Food stamps were distributed free after the flood in the city in order to ease the financial burden on victim families.

Postdisaster resettlement--Due to the widespread damage to the homes of victim families, and the utilization of temporary housing, many families were forced to change residence several times. Over 50% moved twice within one year of the flood, and 32% changed homes three times or more. Between June, 1973 and May, 1974, 25% of the families moved at least once more.

Kin and friendship ties were important factors in determining where people went to live in the emergency period after the impact. Thirty-eight families in the victim sample went to live with relatives in the aftermath. Another 22 lived with neighbors and friends. Only three families used official disaster shelters in the town. This last fact is indicative of the sudden onset of the event. There simply was not time to locate and go to official evacuation shelters. In Rapid City, kin and friendship networks provided a rapidly activated emergency period resource for victim families.

Approximately half of the victims were able to live in their damaged homes within two weeks of the flood. This often involved living in a house filled with mud and debris, or in similar various states of disrepair. It is clear that in Rapid City there was a strong desire on the part of families to return to their homes in spite of the dirt and damage.

The control group, by way of contrast, had very little residential change since June, 1972. Of those interviewed, only seven families had changed homes by August, 1974. In only two of these instances was it related to the flood. On the margins of the floodway, the vagaries of the flood waters left some homes untouched but surrounded by damaged houses. These undamaged houses were acquired as part of the Urban Renewal floodway clearance, and two control families had to move.

The economic impact on families--Moving, repair and replacement of belongings, and the search for a new home were important and necessary activities for the majority of victim families. Such activities are costly and time-consuming. In Rapid City, three factors lessened extreme economic distress: 1. there was a very low incidence of debilitating injuries in the victim sample; 2. the work places of family members were generally undamaged, or at least could be re-opened in a short period of time; and 3. the presence of large amounts of Federal disaster relief aid, through the Department of Housing and Urban Development and the Small Business Administration, was very important. As will be seen, these factors prevented the families from severe financial losses.

In general, the total monthly income of victim families reveals a gradual upgrading over the two years of observation. This increase in incomes is the result of the general inflationary spiral of wages in the United States, and not the beneficial consequence of the disaster. This conclusion is supported by a comparison of victim family incomes with control family incomes: controls displayed the same gradual upgrading of monthly incomes.

While the flood did not reduce family incomes, it did increase the living expenses of victims. The most common increase was for housing (often being forced to move into new, more expensive housing). In several instances chief wage earners found it necessary to take extra jobs to meet more expensive house payments on new homes. It was primarily in housing and related costs (clearning up, refurbishing, replacing household goods) that the impact of the flood most clearly affected family resources. The assistance provided by disaster aid agencies softened the impact but did not eliminate it.

The general economic impact of the flood is best reflected in victim families' evaluations of their standards of living. One-fourth reported an increased standard of living (when compared to preflood); another 17% said theirs was lower. When comparing changes in standard of living with the control group, an important phenomenon is observable. Generally, the victim families report both a greater increase and a greater decrease in standards of living in contrast to the controls. That is, there is a greater amount of variation in responses of victims than in those of controls. This can perhaps be explained by the fact that the disruption suffered by victim families necessitated a change in their "definition of the situation" (Nye and Berardo, 1966, p. 97). We would not expect the control group to go through this process of redefining their standard of living, hence the lower level of variation in their responses.

We conclude from our data that there is little evidence that the flood caused any long-term price increases or shortages in any commodity except housing. The fact that many housing units were lost in the flood created shortages that inflated housing costs. A rent control ordinance was discussed by the City Council as a check on spiraling housing costs, but it was not adopted.

Employment--The Rapid City flood had very little long-term impact on the employment of the victim or the control families. While the flood waters damaged or destroyed over 100 businesses, few of those interviewed worked at any of those places. In the victim sample there was virtually no long-term unemployment from the flood. In addition, persons in five families found work after the flood as a result of jobs created by the flood (clean-up and construction). In 16 cases the chief wage earner's place of work was closed temporarily due to the flood; in every case, however, their work began again within two months. It was not uncommon for victims to be given paid time off to clean up their homes.

Between June, 1973 and May, 1974, the work places of 11 chief wage earners changed locations; four of these moves were flood-related. Only two families reported that changes in work place locations would make the journey to work more expensive or time-consuming. However, 22 families indicated that their journeys to work had increased in time and expense due to the locations of their new homes. The control families reported only minor disruptions in work routines due to the flood. In only two cases did control chief wage earners have their work places move. In no case did changes in the locations of work places adversely affect journey to work time for the control group.

There was little disruption of work roles among either group due to the flood, and in only a few instances did work places move. Also, there were new jobs created by the flood.

Housing--In this section the focus is on specific topics such as means utilized to find new housing, changes in housing tenure, respondent satisfaction with old and new housing, and the patterns of housing aid utilization.

Most families (59%) received housing aid in the form of SBA loans and HUD housing grants of various sorts. The data indicate that housing aid was utilized equally across occupation and income categories. The poor were no more likely to receive housing aid than the more well-to-do. Similarly, the aged were no more or less likely to receive housing aid than younger persons. There is a similar random distribution in the receipt of aid for replacement of household furnishings. The old and the poor were no more likely to receive aid for furnishings than any others. The major factor in determining who received aid was the amount lost in the flood. Both the receipt of aid for housing and receipt of aid for furnishings were dependent in large measure on degree of loss.

The large amounts of aid available for housing, including Urban Renewal acquisition of flood-damaged homes, played an important part in reducing the long-term impact of the flood on families' housing situations. In addition to providing aid for housing, organizations were also useful in helping flood victims locate housing, both temporary and permanent. Most of the 35 families who utilized organizational aid in finding housing did so through HUD. Persons with higher socioeconomic status (SES) were more likely to have used organizational aid in finding housing than were lower SES. Thus, upper-middle class families located new housing sooner than poorer families.

There was little change objectively in housing characteristics of victims from preflood to postflood. Most families who received new housing obtained what was, in large measure, equivalent to their predisaster homes. There was a decline between June, 1972, and May, 1974, in the number of families renting homes. Families who rented prior to the flood, in several instances, found it possible after the flood to purchase homes due to low-interest loans available to flood victims.

How did families feel about their post-disaster permanent housing and neighborhoods? In most instances families did not rate temporary housing very favorably. Many expressed relief in being able to move out of relatives' homes when they located new housing. Most said it was simply too crowded "doubling up" with relatives. Of those having a new permanent home by May, 1974, however, 74% said their new homes were nicer than their preflood homes.

Safety is another subjective housing factor that was examined. Of those moving, almost all indicated that their new homes were safer (from disasters) than their preflood homes. As a result of the floodway clearance, those who moved had to relocate into houses far from Rapid Creek. Thirty-one percent of the victims now have flood insurance on their homes. Most of these persons live on the fringe of the floodway, where there is some flood hazard. By way of comparison, only 10% of the control group have flood insurance on their homes. This reflects the location of their homes, generally quite removed from major flood hazard.

Lifestyles--Disaster literature has emphasized how the rise of the "therapeutic community" (Barton, 1969) in the postdisaster setting has a tendency to "bring people together", but there has been little documented evidence as to the long-term consequences of a disaster on family solidarity and visiting patterns (c.f., Drabek, *et al.*, 1975).

The lack of free time, relocation of families, and disruption of neighborhoods all had effects on visitation patterns between flood victims and their relatives and neighbors. One year after the disaster, 41% of the families reported they visited neighbors less. Drabek and Key (1975) found similar decreases in the visitation of neighbors by tornado victims. The decrease in the visitation of relatives was less marked. For victim families two years after the flood the decline in visitation was no longer as widespread. Only 14% reported less visiting than before the flood. In comparison, almost 90% of the control sample reported no change in visitation with either friends or relatives.

Loss of spare time also accounts for the disruption of leisure activities experienced by victims. One year after the flood, nearly one-third of those interviewed said they still had less leisure time than before the flood. Only 9% had more leisure time. Clean-up and resettlement activities were still cutting into leisure time. Even two years after the flood, 30% of the victims still had not returned to predisaster leisure activity levels. It can be seen that while most victim families returned to normal levels of kin and friendship interaction, for many then leisure activities were disrupted to some degree.

Would the moving about of victim families have an effect on where they did their shopping? Almost 90% of the families continued to shop at their regular grocery stores. The small size of Rapid City probably accounts for this lack of change. Since most families had cars it was not too difficult to return to familiar stores.

The flood had little effect on school attendance of children in the victim sample. In only 11% of families interviewed did children have to change schools. In no case did a family's flood experiences result in a drop in the school attendance frequency for their children, but the flood occurred at the start of summer vacation and no schools were in session.

In sum, the dominant factor affecting most aspects of the victim families' lifestyles was lack of time. Both in leisure activities and in the visiting of friends and neighbors, the effects of the lack of spare time can be seen. The sequence of normalization of activities was: 1. kin visitation, 2. neighbors, and 3. leisure activities, reflecting a dominance hierarchy of values among the victims.

Life satisfaction--Perhaps the most important measures of family recovery are those that tap a family's view of how their current social situation compares to that at the time of the flood. When asked to compare their current (1974) living situation to their 1972 one, 40% said their new conditions were better, and 20% said theirs were worse. All those saying their life situation was worse attributed it to events related to the flood. In June, 1973, 25% of the victim families reported their lives to be less happy than before, and 15% reported theirs to be more happy. By May, 1974, there was an increase both in those reporting their lives more happy (22%), and in those reporting it less happy (28%). Most (71%) who said their lives were less happy reported that it was because of unpleasant experiences and memories of the flood. The remainder said it was due to monetary difficulties encountered since the flood.

The second year increase in the number of families indicating that unpleasant memories have made their lives less happy is curious. One year after the event, most people said that physical losses and disruption were what made their lives less happy. Two years afterward, responses shifted to emotional concerns (friends killed, neighborhoods destroyed, a cherished home gone). Apparently as a family gets resettled after the turmoil of the disaster, members begin to have more time to ruminate and reflect on their personal experiences.

In attempting to determine what factors affect life happiness among victims, several areas were explored. Not surprisingly, extent of damage to the home was related to personal happiness, as were both percent of furnishings lost and percent of personal possessions lost.

These findings hold several implications for the notion of family recovery. Loss of home, household furnishings and personal possessions have a continuing negative effect on family happiness. The disruptive effects of the flood continue long after the family is physically settled into a new home. In fact, some of the negative consequences only seem to appear after a dislocated family has resettled. While aid can help a family resettle and recoup physical losses, the aid per se had little association with a family's happiness, although one may speculate that without the massive Federal intervention there may have been a wholesale increase in the number of families reporting life as less happy. Certain aspects of the notion of recovery involve perceptual subtleties that belie objective appearances. A family can be settled into a new home in a nice neighborhood and yet feel that their preflood living situation was a better one. Such a family is reestablished but it cannot be said to be recovered. Only when a family rates its own happiness and living situation as the same or better than before a disaster can it be said to be recovered.

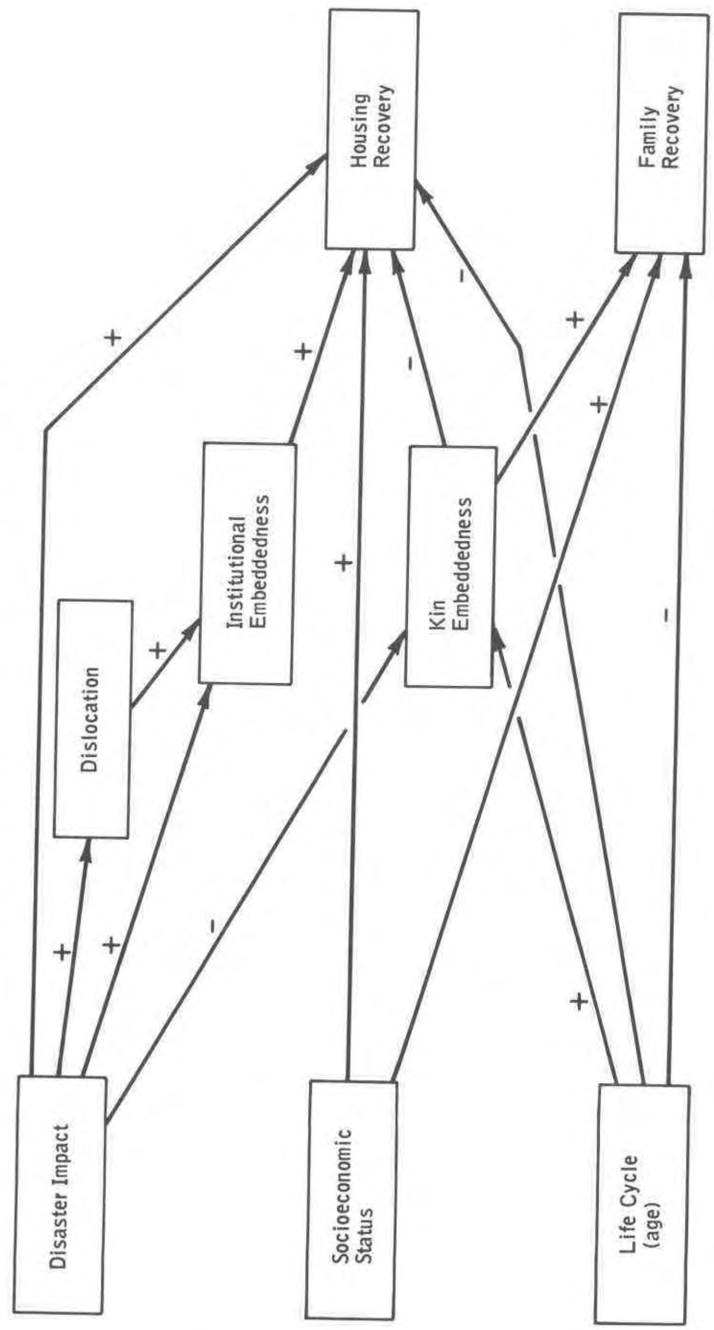
The recovery process in families, at least in one sense, can be seen as a process of redefinitiion of their respective evaluations of the situation. Only when a particular family's postdisaster situation is perceived to be equivalent to their predisaster position, is that family, in its own perception, recovered. Families are heterogeneous in their values and in their social organization. While the recovery of family in terms of its physical setting can be accomplished with sufficiently well-planned aid programs, the factors that affect how a family finally comes to redefine its situation as "recovered" are more subtle and far more difficult to assess.

Family Recovery

In the preceding discussion we have dealt with selected aspects of family recovery, primarily in areas such as homes, jobs, and life happiness. In order to present a more general view of the process and the interrelatedness of factors, a diagram showing statistically established relationships among major categories of measures is presented (Figure 4-1). Before examining the implications of the model we will review each component.

Disaster Impact:	Aspects of a family's losses in the flood: dollars, and percent of house, furnishings, and personal possessions, lost; death and injury.
Dislocation:	Aspects of a family's ongoing activities disrupted by the disaster: school attendance, visitation patterns with relatives and neighbors, and shopping patterns.
Life Cycle:	Average age of adults in the family, an important explanatory factor in family recovery.
Socioeconomic Status:	A family's position in terms of income, occupation, and education of the chief wage earner--useful in predicting certain recovery modes or techniques.
Institutional Embeddedness:	The number, amount, and sources of recovery aid a family used; the more organizations from which a family sought aid, the more it is said to be instituionally embedded.
Kin Embeddedness:	The degree to which a family used kinship *rather* than institutional aid in the process of recovery.
Housing Recovery:	Measures which assess how fast a family was reestablished in a *permanent* home, and the

FIGURE 4-1
COMPONENTS OF A CAUSAL MODEL OF FAMILY RECOVERY



degree to which that home was equivalent to their predisaster home.

Family Recovery: How recovered a family *feels* it is; families' perceptions of life happiness and satisfaction.

The interpretation of the model is relatively straightforward. Where lines connecting boxes have an arrow at one end, causality should be inferred, e.g., impact causes dislocation. The plus or minus sign indicates the direction of the relationship. For example, the negative sign between age and family recovery means the older a family is, the less likely it is to have recovered.

There are two areas of relationships that are particularly important. As can be seen, how much aid a family receives from organizations determines, in large part, their level of physical (housing) recovery. In contrast, using kin aid tends to delay housing recovery. This is as would be expected, since kin can seldom provide the resources that organizations can. More important, however, is the lack of association between housing recovery and family recovery in the perceptual and emotional sense. In these terms, the dominant factor affecting a family's recovery are its socioeconomic status (roughly speaking, wealth) and its relative age. Older families can be seen to have particular difficulties in adjusting to new homes in new surroundings. The problems for the poor and aged are the greatest in the recovery process according to our data. Specifically designed aid programs for these minority groups are clearly in order if family recovery is a desired outcome of the reconstruction program.

The Impact of Policy Decisions on Families

In the wake of the June flood, many issues arose that community leaders had to act upon. Some of these issues and decisions have been implicit in the above discussion. What will be considered here is what impact certain community-level decisions had on families, both in helping them recover and in constraining their activities.

The primary decision area that affected families was the basic plan of reconstruction that the city selected. The fact that a floodway clearance plan was selected had several specific consequences on families. Homes in the floodway were condemned and purchased by the Urban Renewal Authority (URA). In some instances, families were given acceptable purchase prices for flood damaged and destroyed properties. This gave them the necessary money to relocate into new homes. However, some homes, undamaged by the flood, were condemned and purchased by the URA. This acquisition of undamaged property was a disrupting experience for some families. While the floodway clearance has been beneficial in many instances, it has forced non-flood victims into being "relocation victims".

The housing shortage in Rapid City was made acute after the flood. Low-income housing for the poor and aged was especially lacking. To cope with this the construction of rent supplement housing was undertaken. As they were completed, they made available to elderly families housing that is affordable, something in short supply before the flood. The location of temporary housing for victim families was problematic. The decisions made on its location were constrained by the availability of land and urban services. These constraints resulted in HUD trailer parks located a good distance from commercial centers--a severe handicap for the aged--and in a rather poor state of repair.

The most difficult aspect of the temporary housing, and one that is responsible for some measure of the disruption felt by some victim families, comes from allocation programs. Little consideration was given by officials to the social construction of these contrived communities (Suttles, 1972). Trailers were allocated on a first come first served basis, and the results were not always satisfactory. Consequently, those already strained by the events of the flood were thrust into trailer courts among strangers, often antagonistic and culturally quite removed from each other. Some trailer courts were the scenes of violence and disruption. In many instances, racist antagonism was responsible for much of the unrest. Are such occurrences in some measure avoidable? Some of these consequences might have been anticipated in a bi-ethnic community such as Rapid City. It is perhaps too much to ask that officials operating under difficult conditions try an experiment in housing assignments. Looking to the future, however, officials in other cities could consider planning in advance so that incoming victim families could be given the choice of type of "mini-neighborhood" they wanted within the temporary housing area.

Long after the tension and conflict had developed in the trailer park attempts were made to calm the situation. An outreach program funded by the National Institute of Mental Health and the work of the Rapid City Mental Health Steering Committee assisted in organizing a variety of self-help programs. These efforts seemed to contribute to a reduction in tension.

The Rapid City experience suggests that officials ought to plan in advance if possible or in any case be highly sensitive to the possibility that tension will emerge between victim families, especially where they are crowded into new locations. Efforts should get underway promptly. More than just individual or family counseling will be required. It is the artificially constructed social system (neighborhood) that should be the focus of attention. Professionals skilled in assisting in the formation and operation of neighborhood self-help groups should act as initiators but not controllers.

Everyone living in the outlying trailer parks was inconvenienced by their location. Without public transportation the poor and the elderly found it most difficult to shop, attend church and recreational facilities and to visit friends and relatives. This was an added burden which victim families should not have to bear.

There are at least two partially feasible solutions to the problem. If planning in advance can be carried out, contingency arrangements can be made to utilize temporary housing facilities or to set up temporary housing on land that provides reasonable access to shopping and other normal family needs. If that can't be done (and many people prefer to believe that a disaster won't occur in their lifetime) then an after-the-fact alternative is needed. Either accessible locations must be quickly located and utilized or some acceptable (in cost and frequency) mode of transportation needs to be established simultaneously with victim family occupancy of a temporary housing area. If a community cares about its disaster victims it should care enough to make it possible for the displaced victim families to carry on something approximating normal family activities at a cost that will not wreck meager budgets.

Finally, we will summarize the issues in Rapid City, especially as they relate directly to victim families:

1. Top priority was given to efforts to insure against flood losses in the future. Specifically, the heavily damaged area was turned into largely open space, a "floodway". Properties were condemned and removed. The vast majority of these were residences. This action assured the dissolution of many preflood neighborhoods. It also assured at least the short-term separation of sets of friends and relatives who had lived in those neighborhoods. Most families (70% of the sample) indicated that they would not want to live in the floodway again even if permitted to do so. Given the commitment to clear the floodway area, very little could be done to avoid creating relocation victims in addition to flood victims. Appropriate agency actions can ease the painful transition period, however.

2. As a result of condemnation and compensation procedures the relocation program, in most instances, provided financial resources for victim families to secure housing in other locations. There were several concerns about the process, however.

A number of victims felt the procedures carried out prior to paying compensation were unnecessarily lengthy. Waiting for decisions and being uncertain of how much one will be paid for his home is difficult enough under normal circumstances. It is exceptionally difficult to live with after living through a disaster. Victims were understandably very sensitive to the speed of the clearance program. It was felt that every effort should be made to solve "people problems" before proceeding with park landscaping, for example. This perspective may seem strange to a public official, but it is very real for the victim.

3. Questions of equity tend to be persistent throughout the restoration and reconstruction periods. Victims tended to be sensitive to real or imagined favoritism toward the more affluent homeowners and business owners in relocation and recovery aid. A frequent complaint was that there was "too much help for those who don't need it." There were special programs to help minorities. It was generally agreed that their problems were very severe, but with the efforts there was still feeling expressed that aid to the Native Americans was insufficient. It is unlikely that an agency, public or private, can avoid all such criticism. Consistent concern about the problems of equity is called for. Making it clear to all interested parties that equity is being sought ought to relieve somewhat the sense of injustice that tends to prevail among those who are less affluent and/or powerful.

4. Uncertainty over the exact boundary of the hazard zone (floodway) creates a range of problems. A "gray area" about where the dividing line will be causes anxiety and makes it difficult for property owners to reach decisions. Those lines should be stipulated at the earliest possible moment and then firmly adhered to. Even discussions about the possibility of changing a section of the boundary creates unnecessary concern and resultant indecision. In such a situation the consequences of uncertainty, especially prolonged uncertainty, are almost entirely negative.

5. The problems associated with large-scale temporary housing for victim families can be enormous if unanticipated or neglected. Experts are called for, plus persistent attention over time.

Familial Coping in Managua

The research effort reported in this volume was begun with a recognition that there were marked cultural and social differences between a Rapid City and a Managua. We had examined both cities shortly after the catastrophic events and thus were quite aware of the differences. The aim of our research was to examine the central features (issues, decisions and impacts) of each reconstruction period using the same basic framework of abstract concepts to spot the major forces at work. We believed it possible that surface events in Rapid City or Managua could be quite dissimilar while the underlying issues might be quite comparable and the two processes nearly identical.

Having reviewed family coping in Rapid City we now turn to families in Managua who faced not flood but earthquake. The general impact of the earthquake is presented first. Information on how the sample of families was drawn and the data collected is included to give the reader a background with which the findings may be more meaningfully interpreted. A description of the loss and disruption for the families is followed by a discussion of ways in which aid was sought and received. Here governmental policies are seen to have considerable impact on victim families. Economic and employment considerations are discussed prior to a consideration of resettlement, housing and lifestyle changes and life satisfaction. Finally, selected major issues are noted for their longer term impact on victim families.

Figures on death and destruction following the Managua disaster vary somewhat from source to source, and in many cases, have been reduced as time passes. Estimates used by the U.S. Agency for International Development (AID) in January, 1973, put the number of deaths at 4000-7000, or 1-2% of the population. Figures for the population of the city at the time of the earthquake show discrepancies, but seem to lie between 400,000-450,000. The number of injured was estimated at 20,000, and the number of homeless between 220,000-250,000.

Estimates on the destruction of dwellings range from 40-60%, with perhaps as much as another 25% seriously damaged. Major industry was located out of the center of the city and was not extensively damaged. However, within the more than 400 blocks of the downtown section which were completely destroyed were concentrated not only the government buildings, but shops, small factories, workshops, and service activities. It is estimated that over 90% of these were destroyed, and the jobs of tens of thousands of persons were eliminated. As of January, 1973, AID was estimating the total loss to the country at approximately $550 million.

Managua, as an extensively damaged urban area in a developing nation, presents an interesting case of families recovering from great disruption without the help of the many formally organized and experienced agencies for providing aid that are found in more developed nations.

Methodology

Damage and disruption in Managua following the earthquake was so severe that over half the population is estimated to have left the city immediately, or within a few days following the earthquake. Many returned within days or weeks, others stayed for longer periods of time in the cities or towns to which they had evacuated. The situation presented the opportunity to interview both those who had returned to the disaster-stricken city within seven months of the earthquake, and those who had not.

All the families interviewed had lived in Managua on the eve of the earthquake. Those labeled Managua Residents in the findings presented here were still living, or were again living, in Managua when the first interview was done in July-August of 1973. Those labeled Masaya Refugees were living in Masaya at the time of the first interview, although they had been living in Managua at the time of the earthquake. In July and August, 1973, 475 families were interviewed in the two cities. The same families were sought for a second interview in May, 1974. About 77% of the original sample was located and interviewed a second time. Findings reported here are based on the total number of families interviewed both times.

Sampling was done in a two-stage manner by making a random selection of voter registration districts, and then randomly selecting a section within each district for interviewing. In Managua, families were defined as "victims", and thereby included in the sample, if they had been dislocated from their dwelling for a month or more following the disaster. In Masaya, they were included in the sample if they had lived in Managua at the time of the disaster. The concept of family is limited to those members living under the same roof who made up a distinct economic unit. It was possible for two families, even if kin, to be sharing living quarters, but to be defined as separate families. There was no control sample.

Besides interviews with families and information provided from maps, directories, newspapers and various other documents, interviews were conducted with government officials and private sector leaders in order to get information from various viewpoints. Thirty-six businessmen who had been employers of some head of household in the family survey were also interviewed. In July, 1974, following the final wave of the family survey, 20 of the families already interviewed were visited a third time in order to learn in more detail about the personal problems and strategies of families as they recover from such a disaster. These interviews are referred to as the "in-depth" interviews and provide a greater richness to the survey findings.

Loss and Disruption

The damage suffered in an extensive disaster can create social, psychological, and economic disruption, since not only are dwellings and possessions lost or damaged, but some families experience the death of family members or other relatives, and injuries to family members. Five of the families surveyed in this study had from one to five family members killed in the earthquake, and 59 of the families (16%) lost other relatives. Ninety-one (25%) families had one or more family members injured; these injuries resulted in at least temporary incapacitation for work for 5% of the adults in the sample.

Almost 66% of the sample reported their house had been destroyed, about 25% described it as having been damaged but repairable, and the rest had a house at least habitable. Over a fourth of the families estimated that they lost over half their household furnishings or over half their personal belongings. As might be expected, families who lost nothing, or who lost all their belongings tended to report a similar amount of loss for their furnishings. Twenty-nine percent report they were affected by robbing or looting in the aftermath. Respondents were asked to give an estimate of their total monetary losses including both damages and looting. When all the loss amounts are added together and divided by the number of families reporting monetary losses, the average loss per family was about the equivalent of U.S. $1665. The median loss was about U.S. $715.

These families were also asked what other kinds of expenses they had incurred as a result of the earthquake. A variety of expenses were mentioned, but the most common was transportation; 60% of those who said they had had extra expenses mentioned the cost of transportation for their families and belongings to a new location. It appears that even though the government prohibited entry into the most badly damaged portion of town, and ordered the city evacuated, it was unable to mount a full-scale effort to aid in the transportation of persons and their belongings to other locations in the country.

All these families were asked what they did immediately after the disaster to get money. Two-thirds indicated that they relied on their own resources at hand, while the other third went to collect money due to them, borrowed money, or received help from relatives or friends. Those in the upper third of the income distribution were the most likely to report having relied on their own resources. The decision on the part of leaders to open the banks, helped to reduce uncertainty for those who kept excess monetary resources in a bank.

Respondents were asked if any family members had suffered some sort of nervous problem as a result of the earthquake. (In Nicaragua "nervous problems" include excessive worry, sleeplessness, continued irritability, etc.). Forty-two percent of the families reported one or more members had suffered since the disaster, including minor symptoms. For over 90% of those persons reported to have had nervous problems, symptoms persisted into July, 1973, seven months after the earthquake. In May, 1974, or seventeen months after, 57% of the families reported that they then had one or more members with nervous problems which were a result of the earthquake, indicating an increase in incidence over time. Perhaps as life loses the intensity of activity focused on recovery and becomes once again routine, persons have time to dwell on their unspecified anxieties and reflect again on what the disaster did to their lives. It is not known if this increase was also evidenced in the "non-victim" population.

Aid

Seventeen months after the earthquake, the families were asked specifically which types of aid they had received since the earthquake. Just over 75% indicated they had received at least one type of aid. Food from government programs was the most common type reported, with 45% having utilized that emergency program. The next most frequently mentioned type was lodging from relatives, with 42% of the families having accepted a place to stay with kin. No other type of aid was received by less than 20% of the families. In general, the lower classes were more likely to have utilized various types of aid, although the relationships are not significant.

There are no significant relationships between the receipt of various types of aid and recovery in the area of housing or employment. Generally speaking, the aid received was insufficient to provide a significant change in recovery speed.

Families were also asked if they had been able to give aid to anyone. Just over a third reported having provided food or lodging to relatives, and "whatever possible" to friends. Those giving aid were more likely to be in the upper third of the income distribution.

That more aid was not received from the government is probably both a reflection of the amount of aid offered by the government, and a reluctance on the part of middle-class families to utilize such aid if they did not really need it. That more was not received from relatives, for example in the form of loans or gifts of money, is most likely attributable to the fact that relatives and friends were also affected by the earthquake, or were not that well-off themselves even before the disaster. The families interviewed tended to perceive their losses to be the same or less than those of their friends.

The government's position was that it did not feel it was in the best interests of the people to create a "welfare state" through giving out copious amounts of aid in the aftermath, and after a certain period of time even limited the distribution of food to victims mainly to those who were working in the newly formed "civil reconstruction corps" helping to clean up the city. This corps was also to help ease unemployment by putting excess labor into labor intensive projects, thus freeing what heavy equipment was available in the country for high priority jobs. These projects attracted far fewer workers than was anticipated. Many persons were unable to do labor such as was offered through the corps, or felt that it was unfit for women or girls, or for persons who had been white-collar workers prior to the disaster. In addition, getting "paid" a small portion of rice for a day's work did not help to feed young or elderly dependents at home.

The aid mentioned by respondents falls mainly into the realm of emergency aid--medical, transport, shelter--although the food distribution went on for over nine months. There were few large-scale programs of aid which might be classified as recovery-oriented, comparable to grants for replacement of items, loans for businesses, or housing restitution often made in the aftermath of U.S. disasters. Some permanent housing was ostensibly given away, although it was rumored that much of it had not been given to the truly needy, or that it turned out to have hidden costs which made some of the "free" housing too expensive for the poor.

The major temporary housing program, initiated by AID, also had eligibility guidelines to assure that the houses went to those of meager resources, and to earthquake victims. This program, however, entailed payment of a monthly fee to help defray maintenance and administrative costs, making it too expensive for some families. A temporary and low-rent project, or even a new "permanent" neighborhood, were made too expensive for some because some persons could not successfully run a small business out of a home in a new location when no middle- and upper-income clientele lived nearby. For those who worked outside their own homes, it was necessary to take into account how difficult and expensive it was to get from the project site to their place of employment.

For many months after the completion of a large portion of the major temporary housing project, public transportation was quite inadequate, and some persons who had initially moved in found it better to move to more expensive housing closer in. There were also problems in inadequate infrastructure and drainage in the project site. A year after the completion of some 11,000 units of housing, they were not yet filled, indicating that they did not meet the specifications victims had for housing, even in a situation of extreme housing shortage.

It can be seen that some policies, however sensible, will not be acceptable to various sectors of the population for a variety of social and psychological reasons, despite the dire economic circumstances on the part of many. (This is likely true for any country having significant social class and lifestyle differences.) These persons apparently work out some personal strategy for survival, utilizing relatives and resourcefulness. These are areas of concern which warrant analysis. For example, policies which can help kin networks to aid each other might be useful in areas where public resources are not adequate or not available for large-scale programs.

Economic Impact of Families

While all of the persons in the Managua and Masaya sample suffered the disruption and expense of moving, many also bore additional expenses in repairing or replacing damaged homes and belongings, or paying for treatment associated with injury or emotional distress of family members. Even though half of those with material losses estimated the amount to be less than U.S. $715, when that amount is compared to the estimated prequake annual media family income of U.S. $1560, it gives an idea of the burden even small losses can be for many of the families in Managua. The aggregate mean income for the families tended to be lower seven months after the disaster than it was before the earthquake, but was very close to the prequake mean by 17 months after the disaster. However, comparison of Managua residents with Masaya refugees shows that the latter did not seem to return to their former levels of income as quickly as the Managua residents.

Besides periods of unemployment, or reduced incomes for the heads of households because of job change or business difficulties, some families experienced reductions in total family income due to the fact that fewer other family members were able to find jobs and contribute to the maintenance of the family, or to the fact that some other source of income such as rental property or a second business had been lost in the quake. Seventy percent felt that whatever their income was, it did not allow them to live as well as they had before the disaster, apparently referring to the increasing cost of living in the area.

With the incomes of 50% of the families objectively less, and with their spending power reduced by rising prices, the excess resources at the personal level were scarce. It can be assumed that much of what was being earned by these Nicaraguan families was going into daily living expenses; the interview at 17 months showed that the capacity of the majority to repair or replace housing or possessions was limited. Four-fifths of those interviewed who owned the house they lived in said it was still in need of some type of repair or reconstruction. Just over three-fourths of the families said they had replaced none or only some of the things they had lost in the earthquake.

Jobs

The first six months following the disaster was a time of disruption for many workers in Managua. The percent of heads of households who were employed was found to have changed from 96% working before the earthquake, to 82% working in July, 1973, and to 89% working in May, 1974. The occupational categories which experienced the higher level of unemployment were the semi- and unskilled, and the vendors and clerks. Prior to the earthquake, 37% of the heads of households had been self-employed. A change from the status of self-employed was more likely to be in the direction of fairly long-term unemployment rather than to being salaried. Self-employment in Nicaraguan society includes not only owners of businesses and certain professionals, but also the small craftsmen and artisan enterprises, and many types of one-person endeavors represented by the myriad street vendors and those offering convenient services.

For the most part, by the seventh month, heads of households, if employed, were employed in the same occupational category (although not necessarily in the same specific job) as before the disaster. Professional, managerial, office workers, and transportation workers were the most likely to retain previous occupational classification and previous income category. Those in the higher income categories and higher occupational categories tended to display the most continuity in employment, having worked for more months since the earthquake than many of those in the lower classes, and being more likely to be working for the same person as before. However, since offices, hospitals, and stores were among the most extensively damaged enterprises, it is not surprising that the professionals, managers, and office workers were less apt than others to work in the same physical location as they had prior to the disaster. Many small craftsmen, artisans, and vendors were also displaced by the destruction of the downtown area.

Four-fifths of the heads of households who had been self-employed before the earthquake reported that the disaster had resulted in a change in their business situation; 44% reported that they had lost their enterprise altogether, and all but a few reported either being temporarily closed, or having had their profits diminish since the earthquake. Losing a business could refer to losing a market stall or a horse cart, but it also applied to the many small craftsmen and shop owners who lost their home and place of work in the center of town. In the course of the destruction and fire, they lost the basis of their livelihood in the form of their sewing machine or forge, or lost much or all of their inventory and working materials. To reestablish would not have taken a large amount of money, but few had it, and there were practically no special programs designed to help small businessmen. Over two-thirds of the self-employed said they needed economic aid after the disaster, and about three-fifths of them received it. Half of those in need received aid from relatives or friends exclusively, and a quarter were able to get a regular bank loan.

Half of the salaried heads of households indicated that the place where they had worked prior to the disaster was closed for some period of time following the earthquake. Closure of a work place affected many workers acutely, since many reported their place of work had been closed for weeks, or even months. Almost half of those persons sought new employment, either because they could not wait, or because they felt that there was no hope of the former employer reopening. These were more likely to be in the lower income and occupational categories.

Even 17 months after the earthquake, the effects of the early disruption were evident in the subjective assessment heads of households made of their jobs, even though most still had the same occupation, and almost two-thirds even worked for the same employer or had the same business as before. Forty-six percent felt that their job situation was worse than it had been before the quake. Personal observation on the part of the researchers suggests that many persons, including government workers, were still working in what were provisional and less than efficient work settings. There were probably other reasons for negative appraisals of jobs, however, such as actually having a lower salary, or not being able to make enough to live under conditions of rapidly increasing costs. Some may also have felt pressure to keep a job whether they liked it or not, since the opinion of many people below the official decision-making levels was that, with the exception of the construction industry, jobs were scarce in Managua. From talking to government officials and private sector leaders, it was obvious that they did not consider unemployment to be a matter of concern; however, some comments suggested that there was a mismatch between jobs available and skilled workers to fill them. To the man looking for work, it appears as if there is no job if he is not skilled for the existing opportunities.

Postdisaster Resettlement

The families in the survey had all moved at least once. From the time of the disaster, to July-August, 1973, one-fourth of the sample had made only one move, and two-thirds had made two moves. The rest had made from three to six moves in the first seven months. Between the first and second interviews, 22% moved once, less than 2% moved twice, and 75% moved not at all. Most families did not move more than two times in the first 17 months. For over half, the first move took them to the home of relatives, or maybe friends, many of these not within Managua. Initially, they moved as an emergency measure, but for many this became their temporary housing. Only 13% stayed less than one month in the location they moved to first. Thirty percent had stayed six months or more as of July, 1973.

In the course of the first move made by these families, about three-fifths left Managua, while two-fifths moved somewhere else in Managua. Of the 286 families reporting two moves, almost half moved back to Managua with their second move, a quarter left Managua at that point, and the rest moved within Managua. Attempts on the part of the government to encourage people to stay in the other cities and towns of Nicaragua were not successful, apparently because these cities lacked employment opportunities, and adequate housing and infrastructure for absorbing such large increases in population. Families seemed to prefer to return to Managua even though its condition was far from desirable.

Families preferred to have their own private quarters, and thus sought to rent or buy a dwelling when they could both locate and afford one. By 17 months after the earthquake, 35% of the Managua residents were living on the property on which they had lived before the disaster. Nonetheless, many families lived for long periods of time, or were still living at the time of the second interview, in what they considered to be temporary housing. Just under 30% said they intended to move soon. The length of this period of "temporary housing" for Managua earthquake victims is a reflection of at least two community conditions. There was still a shortage of suitable housing units within Managua at the finish of our data collection period. Not only were an incredible number of dwellings destroyed, but the building of residential areas seemed to lag behind the development of the commercial sector. Another condition was the uncertainty which still existed about where property was to be reopened for rebuilding, or where new developments were going to be. Lacking information about the future plan of the city, individuals hesitated to build or to locate in what they would consider an adequate and permanent house until they knew more about the future location of various activities in the city. Those who had formerly lived in the downtown area not only could not return to the property they owned there, but they had been given no information as to whether, or how, they would be reimbursed should residential development be prohibited in that area in the future.

Homes

With such extensive damage to structures and services, relative decreases in the objective characteristics of dwellings might be expected for some time. By the interview of May, 1974, many families were reporting access to conveniences, such as electricity, running water inside, or a refrigerator, which they had not yet reacquired in July, 1973. Had a measure been taken closer to the time of the earthquake, living conditions would have showed an even more marked change over time. The one feature that had been reestablished to the least degree was access to a flush toilet, or not sharing toilet and/or bathing facilities. The lack of such amenities is more marked among the Masaya refugees than the Managua residents, indicating that some degree of the lack in desirable living conditions was in part due to the less developed infrastructure of Masaya, rather than to the inability to restore services in Managua. Nonetheless, the earthquake is the cause for the Masaya refugees to be living in sub-standard housing, since it necessitated their move to that city.

Families who owned their own houses (providing the house was not in the condemned area) were among the first and most likely to return to the same site where they had lived before the disaster. Although some families who had owned houses before have been living in rented houses since the earthquake, many who were renters before have become homeowners, and there has been an aggregate increase in home ownership since the quake. About four-fifths of those who were living in homes they had also owned prior to the disaster had done some repairs or new construction on the house, paying for these with their own available excess resources. Those who had not repaired their homes to their satisfaction said they had not yet been able to afford it. In some cases, however, the unmade repairs were the responsibility of the builder of the particular housing project, and had not yet been completed for all the inhabitants of the project. Families living in such housing projects were about the only ones whose houses were insured for earthquake damage, since it is included in the purchase contract of such homes.

Besides the attempt to gather objective measures of changes in the quality of housing for the families, respondents were also asked how they compared their current dwelling with their housing before the earthquake. About three-fifths felt that where they lived 17 months after the disaster was less satisfactory than where they had lived before; only about one-fifth felt it was better. Masaya refugees were more likely to consider their housing to be less satisfactory than what they had had before. Regardless of what city they lived in, there was a tendency for those who had not returned to their prequake property to feel their dwelling was less satisfactory.

More people expressed dissatisfaction with their current house than expressed an intention to move soon. The consideration by a family of moving again may have been limited by a realistic evaluation of housing shortages and of the inflated costs of housing, rental, or new construction by 1974. It is one thing to want to move, quite another to seriously plan to do it. Dissatisfaction with housing can, of course, go beyond the physical appearance and conveniences of the dwelling itself when people find themselves living in an unfamiliar or partially destroyed neighborhood, and find their access to familiar places has been removed or limited. They may also hold some negative opinion about what the city is coming to be as it is reconstructed, or they may be depressed at what seems a very slow pace for physical reconstruction. They may have had to accept the fact that what they had considered to be temporary housing had become their permanent home, at least for the next several years, while they struggle with daily expenditures and continue to postpone improvements in their living situation.

Concern about living in a hazardous area or dwelling does not seem to be great. Two-thirds of the families thought there would be future earthquakes in Managua, and regardless of whether they live in Managua or Masaya just over half believe that their current house will be damaged if there is another earthquake in the vicinity. Three-fifths of the victim families actually living in Masaya in May, 1974, said they felt Masaya was safer than Managua with respect to earthquakes, yet half of them said they intended to move back to Managua.

Lifestyle

Most schools, most supermarkets, all but one open-air market, all but one movie theater, the stadium, and most night clubs and other places of entertainment were destroyed or badly damaged. Reestablishment of classrooms received much attention in the first few months, and the private sector was not far behind in establishing clubs and movie theaters, as well as supermarkets and shopping centers. The city eventually repaired the stadium, but even after a year had done nothing to establish another open-air market to supplement the function of the one that was not closed by the earthquake. This remaining market lies in the eastern part of the city, and is very distant from the largest concentration of low-income families who ordinarily would do all their shopping in that market.

Almost two-thirds of parents with school-age children felt the schools had normalized by May of 1974, although the postdisaster economic difficulties of some of the poorest families caused a higher percent of them to keep children out of school than before the quake. Most families had to change the specific store or market in which they had previously shopped since so many were destroyed, and over a third reported that they traveled further for grocery shopping than they had prior to the disaster. Since most must now use the bus or a taxi for the greater distance, not only is there the extra inconvenience, but the extra expense of transportation.

For heads of households there was some change in what they reported as their favorite use of leisure time before the quake and seven months later. When asked why there had been a change, the greatest percentage remarked that the places for diversion were gone. By 17 months after, many entertainment places had been reestablished, but lack of money to spend in that manner was then given as the reason for not utilizing facilities that had been used prior to the disaster.

At least three-fifths of the families reported the amount of visiting they did was about the same as before the earthquake. Small percentages of families increased their visiting with relatives or with friends after the quake, but around 30% said that the family visiting had decreased after the disaster. This decrease in visiting on the part of some families is most likely due to the extent to which people had dispersed throughout the area following the earthquake, and to the greater difficulty in getting around the less centralized city.

Life Satisfaction

Seven months after the disaster, two-thirds of the respondents said they were less satisfied with life than they had been before the disaster. Dissatisfaction was more marked for the Masaya refugees, with four-fifths of them stating they were less satisfied, compared to just over three-fifths of the Managua residents. Respondents from both groups, when asked why they felt that way, were more likely to indicate that it was due to the whole situation in general, rather than to any one specific aspect. There was also a significant relationship found between amount of losses measured in monetary terms and lesser life satisfaction.

By 17 months after the quake, the percent less satisfied had decreased to 57%, with very little difference between Masaya and Managua respondents. The percent more satisfied had risen from 6.0% to 11%, with the rest feeling about as satisfied with their life as they had before the disaster. At both points, life satisfaction was significantly and directly related to occupational and employment recovery, income recovery, and recovery in the area of housing. That many families still had lower incomes, that many heads of households were not as satisfied with their work situation, and that families did not consider their living conditions to be as good as what they had been before, contribute to the large percent who were less satisfied with their lives in general.

For many, and in particular for the lowest income group, the lack of excess resources to use for replacing housing or possessions was exacerbated in Managua by the rising prices and the absence of adequate salary increases. Rising rents and utilities and higher prices for food and building materials served to prevent many families from making other than routine expenditures, and led to a sense that former levels of housing or lifestyle had not been recovered or exceeded. Certainly the shortages caused by earthquake damage were responsible for much of the inflation. However, there was also a severe drought in the year preceding the earthquake which had already created shortages in the supply of basic grains in the country, and external factors such as the price of oil, steel, and of shipping such goods further added to the poor economic situation in Nicaragua. Those who indicated that their level of living was worse were asked whether they attributed it to their earthquake losses, to the high cost of living, or to something else. Just over a quarter of them attributed it to a combination of earthquake losses and the cost of living, 33% blamed earthquake losses alone, and 12% blamed the high cost of living.

For the victim families of Managua, a great source of frustration and dissatisfaction had been the inability to make enough money to get abreast of or to get ahead of rising costs in the area. It is, of course, quite possible that non-victims (not measured here) were almost as frustrated with the steadily increasing cost of living in Managua as were those defined as victims for our study. They would possibly report a similar level of dissatisfaction with their life since the disaster, though less of it would be based on their living situation or job conditions which were a result of the earthquake.

In a city in which only about one-sixth of the total area was not totally or highly damaged, it is difficult for a victim or a non-victim to go more than a few blocks in most parts of town and not see a vacant lot or a pile of rubble. Many people rode or drove along the streets of the blocks which used to be the central business district, lived in unfamiliar or partially destroyed neighborhoods, took different or newly developed routes to their work, and shopped in different stores where they no longer knew the owner. Nonetheless, most of the families seemed to be coping with the city's new face, new arteries, and new demands. Certainly no one would expect that people's lives won't be changed by having experienced the aftermath of a disaster such as occurred in Managua in 1972. Many settings and structures will not be duplicated during recovery.

It is likely that most families will eventually come to be as satisfied with their lives as they were before, but this study did not last long enough to be able to find out how many more months or years it will be before the majority of the families will no longer feel earthquake-related losses in their daily lives and surroundings. Although disaster literature notes that people are resilient and manage to reestablish some semblance of their normal daily routines rather quickly, it cannot be said that a majority of Managuan families "recovered" from the earthquake within the first one-and-a-half years.