# Quick Response Report #94
# RISK COMMUNICATION IN SOUTHERN CALIFORNIA: ETHNIC AND GENDER RESPONSE TO 1995 REVISED, UPGRADED EARTHQUAKE PROBABILITIES


## Denise Blanchard-Boehm
## Department of Geography and Planning
## Southwest Texas State University
## San Marcos, Texas


## 1997


Return to Hazards Center Home Page
Return to Quick Response Paper Index



This material is based upon work supported by the National Science Foundation under Grant No. CMS-9632458. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

# RISK COMMUNICATION IN SOUTHERN CALIFORNIA: ETHNIC AND GENDER RESPONSE TO 1995 REVISED, UPGRADED EARTHQUAKE PROBABILITIES


## ACKNOWLEDGMENTS

The field assistance of Marleen P.I. Gravitz and Jenna Ohlendorf, graduate research assistants on this project, is greatly appreciated. Both were instrumental in distributing and collecting the survey instruments, as well as compilation of the raw data used in this report. Both recorded copious notes from the unstructured interviews.


## PURPOSE OF THE STUDY

In January 1995, the Working Group on the Probabilities of Future Large Earthquakes in southern California, issued increased probabilities for this geographic area in a comprehensive document entitled, *Seismic Hazards in Southern California, 1994-2024: The Phase Report*. The low-key warning information was released in conjunction with the one-year anniversary of the Northridge earthquake. After the release of this information, the U.S. Geological Survey (USGS) and Southern California Earthquake Center (SCEC) began developing a publication for the general public that presents and explains, in an easy to read and

understandable format, the public's increased risk from the earthquake hazard in southern California. In October, on the anniversary of the Whittier Narrows earthquake, this publication was distributed to the general public and announced over various media channels. Unlike the distribution of a similar information publication in San Francisco, which was by newspaper insert, this information handbook was and is still being distributed through the library system in southern California. The distribution covered ten counties and included over 400 libraries. The purpose of this study was to visit one ethnically diverse community in southern California, gather some preliminary data on the background and initial impact of the revised earthquake probabilities for southern California, and observe the role that the new information handbook played in educating the public of its risk to the earthquake hazard. This report also assessed the response of ethnic and minority groups to the revised warning message, and captured the gender response as well.

# STUDY QUESTIONS ANSWERED

The following study questions were answered as a result of this research:

1 How and why did the information publication come into being? Who were the people involved and what were their roles? Why was the present method of distribution chosen, and what were the expectations of those responsible for its dissemination?

2 How extensive was the distribution to media sources? What were other methods of distribution of the information handbook?

3 To what extent did the public in southern California "hear" about the revised earthquake probabilities? How vulnerable do people perceive themselves to be from the earthquake hazard? To what extent has the public responded with actions that could save their lives and/or property in the event of a major earthquake? Is the public aware of the information handbook?

4 How do all of the questions in #3 above relate to ethnic and minority

groups? Did gender play a significant role in public awareness and response?

5 What are the future plans for the information handbook and for long-term public education in southern California regarding the earthquake hazard?

# STUDY DESIGN AND METHODOLOGY

The quick response field trip included Dr. Denise Blanchard-Boehm, project leader, and Ms. Marleen Gravitz and Ms. Jenna Ohlendorf, graduate research assistants. Ms. Gravitz and Ohlendorf are Masters Degree students in the Department of Geography and Planning at Southwest Texas State University and have expressed an interest in learning more about the field of natural hazards.

At the suggestion of Ms. Sheila Spiro at SCEC (an assistant to Jill Andrews placed in charge of the handbook's distribution), the quick response field trip was conducted in Pasadena, California. Spiro, a long-time resident of Pasadena, reported that the city was ethnically diverse both demographically and culturally. Pasadena (with a population of around 130,000) also was seen as a compact and manageable area for the three days allotted for field trip activities. Field trip expenses were kept low by flying into Burbank instead of Los Angeles, and efficiency in time was achieved by avoiding the congested freeways of Los Angeles. Further, because Pasadena is known as "earthquake central," it was reasoned that if the message was getting out sufficiently, the public in Pasadena would be the first to absorb and respond. Finally, access to officials involved with various stages of the handbook was easier as several work in the Pasadena area.

In order to answer Question #1, which concerned background information about the handbook, unstructured interviews were conducted by the project leader with Ms. Sheila Spiro and Ms. Jill Andrews of SCEC, and Dr. Lucy Jones of the USGS. Research assistants Marleen Gravitz and Jenna Ohlendorf were also in attendance

at these meetings and took copious notes from our conversations. Jones was the creator of the handbook, *Putting Down Roots in Earthquake Country* and filled us in on how the idea came about, as well as the processes involved in reaching the final product. She was also instrumental in raising funds for the financing of the handbook and gave valuable advice on ideas for methods of distribution. Sheila Spiro, an independent consultant hired by SCEC to oversee the initial distribution of the handbook, was helpful in assisting us with the logistics of Pasadena and in providing us with information on the progress of the handbook's distribution throughout southern California. Because of Spiro's extensive contacts in Pasadena, we were able to be introduced and included in a staff meeting of all library branch managers in Pasadena. Blanchard-Boehm addressed the group and explained the purpose of our research. At the meeting, we were also given permission to conduct surveys on the premises of all the libraries. Our final interview was with Jill Andrews, Director of Technology Transfer at SCEC. Andrews updated us on the handbook's distribution and spoke of the future direction of the handbook, as well as future activities of SCEC in long-term public education toward earthquake risk.

Data on questions #2 through #5, which concerned public response to the updated earthquake risk in southern California, was gathered by Blanchard-Boehm, Gravitz, and Ohlendorf. We randomly surveyed patrons in attendance at the libraries in Pasadena over three days. The field trip leader justified performing the surveys at library locations because the southern California library system is the preferred means through which the handbook is being distributed. Most of the library traffic occurred at the central library in downtown Pasadena, thus most of our survey data was gathered at that location, although we did make a point to visit and survey several other libraries in the neighborhoods. In total, we distributed and collected 187 surveys. A copy of the survey instrument is found in Appendix C to this report.

# RESULTS FROM FIELD RESEARCH: UNSTRUCTURED INTERVIEWS

## Background to the Creation and Distribution of the Information Handbook

Dr. Lucy Jones, the creator and writer of *Putting Down Roots in Earthquake Country*, developed the booklet based on information on what NOT to do derived from the USGS's San Francisco handbook. While the Bay Area publication, *The Next Big Earthquake in the Bay Area May Happen Sooner than You Think: Are You Prepared?* was a big hit with the scientific community, Jones felt that it was too technical for most people, who generally do not understand the basics of earthquakes. *Putting Down Roots in Earthquake Country* is based on the Phase Two report (mentioned previously), which revised and updated earthquake probabilities and locations of future earthquakes in southern California. Again, the report was released on the one-year anniversary of the Northridge earthquake. Since scientists do not know which fault, or even the number of faults, susceptible to failure, new techniques had to be developed to measure the hazard. Jones was involved with the development of these new techniques and with the development of the scientific report.

After the Northridge earthquake, Jones began an earthquake book for children. Ironically, she appeared on television (ABC) on January 14, 1994, with the school class that one of her children attends to discuss earthquakes and her book, and then three days later on January 17th, the Northridge quake occurred - many thought that she had "predicted" the earthquake.

In part because of her children's book, and also because of her extensive background in earthquake monitoring and prediction, Jones agreed to write an earthquake information handbook for the general public that would serve as the primary vehicle for informing and educating the public in southern California of its increased risk to impending earthquakes. The 28-page handbook took about a year to develop. Jones avoided the use of probabilities, instead focusing on maps and basic

explanations that teach people how earthquakes occur, where they might occur in the future, and what to do to prepare. The contents of the handbook include: (1) "The Earthquake Hazard: Confronting the Inevitable"; (2) The Earthquake Risk: Taking Control"; and (3) "Earthquake ABCs: Reviewing the Basics." A great deal of thought went into headlines and titles. There is extensive use of active verbs to evoke emotion and action, as well as emotional pictures to convey the intensity of the images. A psychologist, who treats those with earthquake phobia and anxiety, assisted with the preparedness section of the handbook. Basically, people are afraid because they perceive that they have no control - knowing what to do and how to prepare gives them a degree of control and thus a somewhat more secure feeling. This handbook arms the public with information, and thus a feeling of a greater degree of control over their fates.

## Funding

Initially, Jones received $50,000 from Federal Emergency Management Agency (FEMA) funds channeled throught the state and another $50-55,000 from the National Science Foundation to produce *Roots*; however production of two million copies of the handbook was (initially in early 1995) estimated to cost $450,000. Additional funds were sought from the corporate community, but these efforts produced only another $100,000. The major handicap with business fundraising, according to Dr. Jones, lies with the failure of preparedness personnel in corporations to properly convey and capture the necessary attention from executive decision makers. Jones found that those responsible for corporate preparedness were fairly removed from corporate decision making, and a future strategy might be to go directly to a corporation's public relations department, instead. (A list of corporate contributors appears on the first page of the handbook. No corporation contributed more than $10,000 to the project.) Additionally, the University of Southern California loaned the USGS $35,000 to help with the handbook. To assist with the shortfall, the USGS contributed $50,000.

## Distribution

With less funding than expected, resulting in delays and added expense, only 1.7 million copies of the handbook in English were initially produced. Originally, the USGS had hoped to produce six million copies of the handbook and distribute it as a newspaper insert, much like the 1990 information campaign in San Francisco. However, this number required a substantially larger amount of money for production. Further, Jones doubted that many readers would pay much attention to an earthquake handbook included in their newspaper. She felt that the handbook would compete for a reader's attention among advertising flyers, coupon inserts, Sunday magazines, and entertainment guides. Distribution eventually became the responsibility of the Southern California Earthquake Center (SCEC). The method finally chosen was to distribute the booklet through the southern California library system of more than 400 libraries (84 in the Los Angeles area alone). This cost-effective method would allow the handbook to reach all of the southern California counties. Additionally, Jones (USGS), and Andrews (SCEC) felt that library patrons who picked up the handbook would read it, use it as a reference tool, and not throw it away. SCEC also left other methods of distribution open. Spiro and Andrews both reported that the public had been contacting SCEC directly for a copy (or copies) of *Roots*. At the time of our study, data provided by Spiro showed that SCEC had distributed around 170,000 copies in this manner. Examples of those who obtained copies directly from SCEC included "Neighborhood Connections," an organization that coordinates neighborhood associations, and "Leisure World," a chain of retirement homes. Other organizations included local government unitss, such as Fire Departments, and service organizations, such as the Boy Scouts. The City of Los Angeles bought 47,000 copies, while Burbank purchased 40,000.

Media publicity began on October 16, 1995, with a press conference for the public on the increased earthquake risk, the release of the handbook, and directions for obtaining a copy at the nearest library. There appeared to be mixed results on the effectiveness of the media campaign, mainly

because the distribution of the handbook occurred later than expected. According to Jones, the distribution to the first library system took place the Thursday before (on October 12th) - there were 200 copies sent to each branch. The public service announcements occurred on all three major television networks and on as many radio stations. The handbook's distribution was announced on Spanish radio and TV, as well. In all, there were 400 press releases sent to all southern California counties with a copy of *Roots* attached.

The first media blitz did not seem as effective as it could have been, mainly because copies of the handbook were not in place beforehand. For the week after the press conference, many libraries still did not have copies and thus public interest dropped off substantially. At a staff meeting of all the branch librarians in the Pasadena area, branch librarians commented that they had not been informed of the availability of the handbook in their own libraries. Dorothy Potter, Principle Reference Librarian at the Pasadena Central Library, reported that there were no copies of the handbook available at the time of the media campaign.

# RESULTS FROM THE FIELD STUDY: TOTAL SAMPLE

As mentioned earlier, patrons of the libraries in the Pasadena area were surveyed over a period of three days for a total of 187 responses. The compilation of survey data resulted in the following results for the **total sample**:

1 Almost 52% of the respondents were aware of the upgraded earthquake probabilities that indicated increased chances of a major earthquake happening in southern California (Table 1).

2 The primary media channel by which respondents learned of the low-key warning message was television (73%) - not surprisingly, since this was the focus of SCEC (Table 2).

3 The secondary channels by which the respondents learned of the message were radio (33%) and newspaper (30%) (Table 2).

4 Almost half (47%) of the respondents felt that the information over the media was consistent and very easy (21%) to easy (52%) to understand (Table 3).

5 Two-thirds of the respondents perceived that it was "very likely" (15%) or "somewhat likely" (51%) that their own home would be seriously damaged by a major earthquake on the next ten years (Table 4). When asked to give the "chances," the probability, that a major earthquake would strike their home in the next ten years, again, about two-thirds perceived that the chances would be high or extremely high (Table 4).

6 The majority of respondents expected dollar damage to their home from the next major earthquake to be very high - two thirds (63%, cumulative) expect up to $50,000 worth of damage (Table 4).

7 When asked their opinion on how damaging the next earthquake would be relative to the 1994 Northridge earthquake, again about two-thirds felt that it would be at least the same (33%) or greater (28%) than Northridge (Table 4).

8 Over one-third (38%) made structural changes to minimize the damage an earthquake might cause to their home, while 62% said that they did not. The main reasons given for not taking action were "too expensive" (44%) and/or "just never got around to it" (33%) (Table 5).

9 Preparedness measures included: seeking information from formal sources (33%); seeking information from informal sources (45%); stockpiling emergency supplies (59%); developing an earthquake plan (41%); knowing what to do before, during, and after and earthquake (81%); and, buying earthquake insurance (28%) (Table 6).

10 Over half (53%) knew of neighbors, friends, and family who had engaged in preparedness measures (Table7).

11 Fifty-six percent felt that they were "very prepared (6%) or "somewhat prepared" (50%) for the next major earthquake (Table

7).

12 Only one-fifth (21%) of the respondents had heard of the information handbook, *Putting Down Roots in Earthquake Country*, and about half had already obtained a copy. Three-quarters of the respondents that read the handbook, reported that it was "very easy" or "easy" to understand (Table 8). Of those who did not have a copy, but planned to get one, almost all knew the location of the handbooks (Table 8).

# RESULTS FROM THE FIELD STUDY: ETHNIC RESPONSE

The following ethnic categories reflect those used in the 1990 census: "White (not of Hispanic origin)," "Black," "Asian or Pacific Islander," "Hispanic origin (of any race)." The ethnic breakdown of respondents was as follows: White (39%), Asian (16%), Black (12%), Hispanic (12%), Other (4%). Seventeen percent declined to give their ethnic background. The compilation of survey data resulted in the following results for the **ethnic groups**:

1 Fifty-nine percent of Black and 58% of White respondents were aware of the upgraded earthquake probabilities indicating increased chances of a major earthquake happening in southern California - followed by Hispanic (46%) and Asian (44%) respondents (Table 1).

2 All groups learned of the low-key warning message mainly by watching television news stories, a range of 60-85%. A very high percentage of Black (85%) and Asian (85%) respondents rely on this media type (Table 2).

3 When broken down by ethnic group, the secondary channel by which the message was heard was by radio. Hispanic (60%) and Black (50%) respondents reported the radio as their secondary source of information. Hispanic respondents (40%) also reported that family

and friends were a secondary source of information (Table 2).

4 Over half in each ethnic group judged the message to be consistent, except for the Asian subgroup - only 33% said that the information was relatively the same across media sources (Table 3). About three-quarters of each group said that the message was "very easy" to "easy" to understand (Table 3).

5 Of all ethnic groups, Black respondents (87%) perceived it "very likely" or "somewhat likely" that their own home would be seriously damaged by a major earthquake in the next ten years (Table 4). This was followed closely by the Asian response at 77%. The percent Hispanic and White was 69% and 62% respectively (Table 4). When asked to give the "chances," the probability, that a major earthquake would strike their home in the next ten years, again, about 81% of Black respondents perceived that the chances would be high or extremely high, followed by Asian (62%), White (62%) and Hispanic (53%) respondents (Table 4).

6 Two-thirds of respondents in each ethnic group expected dollar damage to their home from the next major earthquake to be very high - up to $50,000. About half (48%) of Hispanic respondents expect damage to their home to be in the $0-5,000 range, while 46% of White respondents expect damage of $50,000 or greater. A large percent of Black respondents (43%) and about one-third of Asians expected the damage to be in the range of $20-50,000 (Table 4).

7 When asked their opinion on how damaging the next earthquake would be relative to the 1994 Northridge earthquake, 79% of the Asian respondents said that the occurrence would be "at least the same" or "greater" than Northridge. This is followed by 69% Black, 68% Hispanic, and 57% White respondents (Table 4).

8 About one-third of all groups made structural changes to minimize the damage an earthquake might cause to their home, except for White respondents. Of that subgroup, over half (53%) invested in the reinforcement of their home. Of those that did not make

improvements to the home, the reason(s) given were "too expensive," (especially Black at 53%) and/or "just never got around to it" (especially Hispanic at 43%). About one-third of Asians said that it just "won't help" (Table 5).

9 Of the short-term preparedness measures, White respondents (42%) were more likely to seek information from formal sources - only about one-third of the other groups used formal sources. All groups (40% and greater) gathered information from informal sources. Two-thirds of each group stockpiled emergency supplies, except for Black respondents at 46%. Almost two-thirds of Black respondents reported developing an earthquake plan for their family compared to only 27% of Asians. A high percent of White respondents (93%) felt that they knew what to do before, during, and after an earthquake, followed by Black (86%), Hispanic (77%), and Asian (67%) respondents. The highest percent that reported buying earthquake insurance was White at 39% (Table 6).

10 Over two-thirds of White respondents (67%) knew of neighbors, friends, and family who had engaged in preparedness measures. Hispanic respondents followed at (55%), Black (46%), and Asian (30%) (Table 7).

11 At least two-thirds of each subgroup, except Asian (37%), felt that they were "very prepared or "somewhat prepared" for the next major earthquake (Table 7).

12 As with the full sample, only one-fifth of the respondents in each subgroup had heard of the information handbook, *Putting Down Roots in Earthquake Country*. Over half of White and Black respondents had already obtained a copy. Over a third of Asian and Hispanic respondents had obtained their copy. Almost all of the respondents that read the handbook reported that it was "very easy" or "easy" to understand; however, 40% of Asian and 50% of Hispanic respondents had not yet read their handbook (Table 8). Of those that did not have a copy, but planned to get one, almost all knew the location of the handbooks (Table 8).

# RESULTS FROM THE FIELD STUDY: GENDER

The breakdown of gender included: male (48%) and female (52%). The compilation of survey data resulted in the following results based on **gender**:

1 More men (60%) than women (47%) were aware of the upgraded earthquake probabilities indicating increased chances of a major earthquake happening in southern California (Table 9).

2 Both groups reported that the primary media channel by which they learned of the low-key warning message was television (72% men and 72% women) - not surprising, since this was the focus of SCEC (Table 10).

3 Men (39%) indicated their principal secondary channel by which they learned of the message was radio, while both men and women used newspaper (33% men; 31% women) (Table 10).

4 Over half in both groups felt that the information over the media was consistent across all media sources, however, about one-third of men had "no opinion." Seventy percent of men and 82% of women felt that the information was "very easy" to "easy" to understand (Table 11).

5 Two-thirds (63%) of the male respondents perceived that it was "very likely" or "somewhat likely" that their own home would be seriously damaged by a major earthquake in the next ten years, while a higher percent of women (80%) perceived a greater likelihood (Table 12). When asked to give the "chances," the probability, that a major earthquake would strike their home in the next ten years, again, a higher percentage of women felt that the chances would be "extremely high" or "high" for a total of 76% for the two categories. The total response from men for both categories was 51% (Table 12).

6 There was little difference between men and women regarding

expected dollar damage to their home from the next major earthquake - 61% men and 72% women expected dollar damage to be over $20,000 (Table 12).

7 When asked their opinion on how damaging the next earthquake would be relative to the 1994 Northridge earthquake, a higher percent of men (69%) than women (58%) felt that it would be "at least the same" or "greater" than Northridge. About one-third of the women said that they "don't know" (Table 12).

8 About 41% of women reported that structural changes had been made to their homes to minimize the damage an earthquake might cause, while 37% of men reported having made these improvements. Both groups gave the main reasons for inaction as "too expensive" (over 40% each) and/or "just never got around to it" (over one-third) (Table 13).

9 Women (40%) were more likely to seek information from formal sources than men (27%). Both were close in seeking information from informal sources (44% men and 48% women). About the same percent reported stockpiling emergency supplies (57% men and 60% women). About the same also said that they developed an earthquake plan for their family (46% men and 40% women). Again, both groups equally report knowing what to do before, during, and after an earthquake (83% men and 83% women). Both have about an equal percent (27% men and 31% women) who reported buying earthquake insurance (Table 14).

10 Both groups have a high percentage of respondents that know of neighbors, friends, and family who have engaged in preparedness measures (men 59% and women 48%) (Table 15).

11 Both groups equally feel that their households are "very prepared" or "somewhat prepared" for the next major earthquake (59% men and 57% women) (Table 15).

12 Only one-fifth (19%) of the men had heard of the information handbook, while one-third (29%) of women knew about *Putting Down Roots in Earthquake Country*. A higher percentage of women (67%) had already obtained a copy as opposed to 38% of men. Over three-quarters (77%) of men that read the handbook,

reported that it was "very easy" or "easy" to understand, as compared to 66% of the women (Table 16). Of those who did not have a copy, but planned to get one, 90% of the women knew where to get a copy as compared to 77% of men (Table 16).

# FUTURE DIRECTIONS OF PUBLIC EDUCATION OF THE EARTHQUAKE HAZARD IN SOUTHERN CALIFORNIA

Those responsible for the initial distribution should be highly commended for "pulling it off" (the distribution of the handbook) even though the numbers (initially) hoped to be reached fell way short of reality. This was an undertaking fraught with challenges from the very beginning. Fundraising to finance the publication was difficult in the recessionary economy of southern California, with high unemployment resulting in numerous delays in the spring and summer of 1995. Jill Andrews felt that if the project had not been scaled back *Roots* would still not be out. Initially, the goal to obtain full-funding for six million copies in a short period of time and a clean "one-time only" shot at getting out the handbook seemed ideal, especially in light of the big distribution of the earlier booklet in Sunday newspapers in San Francisco in October of 1990. However, the southern California project fell short of San Francisco's model due to: (1) a larger population and area to cover - almost three times larger than the Bay area, and (2) a shortfall in funding due to the recessionary economic climate of southern California, which may not improve for many years to come. The information handbook, *Putting Down Roots in Earthquake Country*, has been designed, created, and marketed as THE primary source from which the public will learn of its increased risk to the earthquake hazard in southern California. As mentioned earlier, there were mixed results in the early media campaign and initial distribution of the publication. On the one hand, it can be assumed that the media campaign created an

interest and awareness that resulted in an initial distribution of the handbook to over a quarter of a million people (library and non-library distribution) in southern California. However, it was also observed that the media campaign and distribution were not well-coordinated, resulting in untold lost opportunities in educating and informing the public of its increased earthquake risk. SCEC had expected a slow response by the public, however, that was not the case. After the Monday, October 16th, press conference, at which every major radio and TV station was in attendance, the public responded enthusiastically in large numbers wanting copies from their local libraries; however, in many cases, the copies were not there.

# OBSERVATIONS FROM THE FIELD

Several observations were noted by Blanchard-Boehm from this field trip, including the following:

1 The electronic media, radio and TV, seem especially effective in southern California for disseminating earthquake information. First, a wider area can be covered, and also earthquake scientists, such as Lucy Jones, are viewed as local "celebrity-experts" and their information seems well-received by the general public over the electronic media. Jill Andrews noted that southern California is very entertainment-oriented, with large segments of its population in the entertainment business. To her, it is somewhat of a cultural phenomenon. Several tight, well-coordinated media campaigns (press conferences, public service announcements, talk shows, etc.) in conjunction with readily available copies of the handbook in local libraries appears to be a very cost-effective and efficient way to get this information to the public.

2 It is crucial that library personnel be aware and be involved in the distribution of the handbook, since it is the main tool for teaching the public of its increased risk. For instance, we found copies of the handbook in well-placed areas of most libraries, but felt that a

simple "Free Please Take One" sign would have encouraged more patrons to pay attention and take a copy home with them. In some libraries, however, the handbook ended up in the back of the libraries among numerous flyers and pamphlets. Posters advertising the handbook in libraries would have been effective in drawing attention to the free handbook.

3 Other alternative means of distribution should be investigated. For instance, SCEC had distributed almost 170,000 copies of the handbook by non-library methods.

4 In addition to the previous suggestion, in order to reach ethnic populations, organizations closely related to particular ethnic groups may be a more effective way to distribute earthquake information to these populations. Andrews reported future plans to produce *Roots* in other languages, such as Spanish, Chinese, Korean, and Vietnamese. All are in various stages of production. Organizations such as the Roman Catholic Diocese (Hispanic), the Asian Bank and East-West Bank (Asian), and UC-Riverside (Hispanic Media Project) were all very good avenues planned for handbook distribution. These also could possibly be utilized as channels for further earthquake education.

5 The print media may be limited in conveying information about the handbook and earthquake information, in general. Jill Andrews felt that newspapers were read by a limited number of people. She observed that most who read newspapers were over 35 years of age and in the professional upper middle classes. While we noted a big story in the *LA Times* concerning earthquake prediction during our visit, Lucy Jones and Jill Andrews informed us that the *LA Times* will not print information about, and from, the handbook unless they are able to obtain publishing rights. Dr. Jones felt that editorials in the *Times* would be the best way to get the information in newspapers. Ms. Andrews commented that other papers had been somewhat more cooperative about promoting *Roots* with feature stories and announcements, especially in the community sections of their newspapers.

6 It was observed that future survey research projects in risk

communication would have to utilize survey researchers from ethnic groups and use survey instruments written in the native language in order to gather sufficient and useful data on the ethnic response. Library patrons from ethnic backgrounds were shy and reluctant to answer our surveys unless we took great pains to explain our research intentions and assure them of their anonymity. After this field experience in Pasadena, the project leader is convinced that conventional survey techniques, like broad-based mail surveys, would not yield information from ethnic populations in quantity or quality unless cultural nuances were respected.

# DIRECTIONS FOR FUTURE RESEARCH

The results from this field research demonstrate that substantial ethnic and gender differences DO exist (1) in "hearing," or learning of low-key warning information; (2) in the use of channels over which the message is heard; (3) in perceptions of characteristics of the message; (4) in perceptions of their own vulnerability to future earthquakes; and (5) in their response to the earthquake hazard. From this study the following questions bear further investigation:

## ETHNIC

1 Why did fewer Asian and Hispanic respondents "hear" about the revised, upgraded earthquake probabilities than did White and Black respondents?

2 While all groups use the electronic media as their main source of information gathering, why did an extremely high percentage of Asian and Black respondents rely on TV and radio?

3 Why were Hispanic respondents mainly the only subgroup to use social networks as a channel for learning about their risk to earthquakes?

4 All groups reported that they do not generally seek information from printed media such as brochures or pamphlets. Is the printed media an effective means of informal education about earthquake hazards

in southern California? Does this include the handbook, *Roots*, or do people just not know about the publication?

5 Why were Asian respondents the only group to judge risk information as generally NOT consistent across media sources?

6 Why did the Asian and Black respondents perceive their vulnerability to future earthquakes to be far greater than the White and Hispanic respondents? Why did Asian and Black respondents anticipate extremely high dollar damage to their homes?

7 Why was there a unanimous opinion by all the groups that the next major earthquake would be about the same or greater than 1994 Northridge?

8 Of all who were homeowners, why did mostly White respondents take measures to protect their homes, as compared to only one-third of all other ethnic groups?

9 Why were those from all ethnic groups, except White, less likely to seek information from formal sources and to purchase earthquake insurance? Why did a lower percentage of Asian respondents report that they knew what to do before, during, and after an earthquake?

10 Why did a lower percentage of Asian and Black respondents feel that their households were not very prepared for the next major earthquake? Further, why did these two groups have the lowest percentage of those that knew of preparation by others?

11 Finally, why did a very low percentage of Asian and Hispanic respondents know about the handbook, *Roots*. Of those two groups, why did it seem that those who did obtain a handbook had yet to read it?

## GENDER

12 Why did a higher percentage of men than women report "hearing" about the revised, updated earthquake probabilities?

13 Why does it appear that men use the electronic media slightly more than women to learn of earthquake risk? Why does it appear that women read newspapers more than men to learn of the earthquake hazard? Why does neither group appear to use brochures and pamphlets?

14 Why were there no differences between the groups on judging the message consistent and easy to understand?
15 Why do women perceive a greater risk to their homes and community than men?
16 Why do both groups expect the next major earthquake to be about the same or greater than 1994 Northridge? Why do both groups expect dollar damage to their homes to be greater than $20,000?
17 Why do men and women almost equally undertake measures to protect their homes and contents from a future earthquake?
18 Why do men and women almost equally take the same short term measures to prepare their households for an earthquake (except for seeking information from formal sources - why are women more likely to do this?)
19 Why do men and women almost equally feel that their households are prepared for the next earthquake, and why do both engage in social networking to find out if others have prepared?
20 Why is it that more women than men know of the earthquake handbook, *Roots*? Why is it that mostly women have obtained a copy of the handbook? Why is it that, of those planning to get a copy, many more women than men know of the location of the handbooks? Why is it that men are more likely to say that the handbook is extremely easy to understand, while some women will admit that parts of the handbook are difficult to read?
21 Are ethnic and gender differences significant enough to warrant tailor-made strategies of communicating risk for each subgroup? Would this be a cost-effective approach to risk communication?

# SUMMARY AND POLICY IMPLICATIONS

The distribution of the handbook, *Roots*, in southern California will be a continuous process over a period of probability three to five years, as opposed to the one-time distribution in San Francisco. Yet to be

explored in further research is a comparison of the effectiveness of these two methods of distribution in earthquake information - continuous and ongoing versus a highly concentrated one-time effort on an anniversary when awareness is high. More importantly, however, is that if differences between ethnic groups are significant, it would seem that a more effective and efficient means of educating a large, widespread public would be to learn what these differences are and to use the differences to the best advantage for effectively communicating risk. For example, if Hispanics do tend to use social networks more than other ethnic groups, then a viable strategy for communicating risk to the Hispanic community could be through face-to-face interpersonal communication. Further, if women tend to use the printed media (newspapers, brochures, pamphlets, handbooks, etc.) more than men, perhaps printed material should be created with a direct bias toward women and distributed through networks primarily used by women.
It would seem logical that learning about ethnic and gender differences in risk communication and them implementing programs that take these differences into account could be extremely effective in improving communication of information and risk to individuals. A variety of "tailor-made" approaches to communicating risk might be more cost-effective than a few "blanket" attempts at educating a large population. It would be worthwhile for hazards researchers to pursue understanding ethnic and gender differences in how individuals learn about their risk associated with hazards, and to use this new knowledge to develop new and improved ways of communicating risk across all hazards.

# REFERENCES

Jones, Lucille M., (USGS-writer) and Jill Andrews, (SCEC-producer) [1995].
*Putting Down Roots in Earthquake Country*. Information Handbook developed by the United States Geological Survey, the Southern California Earthquake Center, in cooperation with the Federal

Emergency Management Agency, and the Governor's Office of Emergency Services. Los Angeles, California: Southern California Earthquake Center, University of Southern California. 30pp.

United States Department of the Interior, Geological Survey [1990]. *The Next Big Earthquake in the Bay Area May Come Sooner than You Think: Are You Prepared?* Menlo Park, California: USGS. 24pp.

The Working Group on California Earthquake Probabilities [1988]. *Probabilities of Large Earthquakes Occurring on the San Andreas Fault*>, USGS Open-file Report 88-398. Menlo Park, California: USGS. 51pp.

Working Group on California Earthquake Probabilities [1990]. *Probabilities of Large Earthquakes in the San Francisco Bay Region*, USGS Circular 1053. Menlo Park, California: USGS. 84pp.

Working Group on the Probabilities of Future Large Earthquakes in Southern California [1995].
*Seismic Hazards in Southern California, Probable Earthquakes, 1994-2024: The Phase II Report*. Los Angeles, California: Southern California Earthquake Center, University of Southern California. 88pp.

# APPENDICES

## APPENDIX A
## COMPILATION OF DATA FROM QUICK RESPONSE FIELD TRIP
## Reported by Ethnic Group

**Table 1**
**Percent of Respondents Who Participated in the Survey**
**(by Ethnic Group)**

| | White | Asian | Hispanic | Black | Other |
|---|---|---|---|---|---|
| Percent Responding | 39 | 16 | 12 | 12 | 4 |

NOTE: Seventeen percent of the sample declined to report their ethnic classification.

**Table 2**

**Percent of Respondents Who Have Heard of the Revised, Upgraded Earthquake Probabilities for Southern California, and Percent of Respondents Reporting Type of Source Used to Obtain Information (by Ethnic Group and Total Sample)**

| | White | Asian | Hispanic | Black | TOTAL SAMPLE |
|---|---|---|---|---|---|
| Percent who "heard" the low-key warning message | 58 | 43 | 46 | 59 | 52 |
| Percent reporting the primary source of hearing the message | | | | | |
| TV | 64 | 85 | 60 | 85 | 73 |
| Radio | 12 | 8 | 20 | 23 | 14 |
| Newspaper | 45 | 8 | 0 | 15 | 30 |
| Brochures | 2 | 0 | 10 | 0 | 5 |
| Family and Friends | 5 | 8 | 10 | 0 | 8 |
| Percent giving a secondary source of hearing the message | | | | | |

| | | | | |
|---|---|---|---|---|
| TV | 26 | 8 | 20 | 23 |
| 19 | | | | |
| Radio | 26 | 31 | 60 | 50 |
| 33 | | | | |
| Newspaper | 33 | 23 | 30 | 39 |
| 30 | | | | |
| Brochures | 7 | 15 | 10 | 15 |
| 8 | | | | |
| Family and Friends | 17 | 23 | 40 | 14 |
| 22 | | | | |

**Table 3**

**Percent of Respondents Who Determined the Messaged Consistent and Understandable (by Ethnic Group and Total Sample)**

| | White | Asian | Hispanic | Black | TOTAL SAMPLE |
|---|---|---|---|---|---|
| Percent judging the consistency of message across sources | | | | | |
| CONSISTENT | 56 | 33 | 50 | 54 | 47 |
| CONFLICTING | 17 | 25 | 20 | 31 | 26 |
| NO OPINION | 27 | 42 | 30 | 15 | 27 |
| Percent judging the level of difficulty in understanding message | | | | | |
| VERY EASY | 32 | 15 | 20 | 8 | 21 |
| EASY | 42 | 53 | 70 | 58 | 52 |
| SOMEWHAT DIFFICULT | 20 | 23 | 0 | 17 | 17 |
| VERY DIFFICULT | 2 | 0 | 10 | 0 | 3 |
| UNSURE | 5 | 8 | 0 | 17 | |

**Table 4**
**Perceptions of Vulnerability to Future Earthquakes Measured by the Beliefs of a Future Earthquake, Estimates of Chances (Probabilities), and Estimates of Dollar Damage (by Ethnic Group and Total Sample)**

| | White | Asian | Hispanic | Black | TOTAL SAMPLE |
|---|---|---|---|---|---|
| Percent respondents estimating the likelihood of home being seriously damaged by a major earthquake in the next 10 years | | | | | |
| VERY LIKELY | 13 | 20 | 23 | 14 | 15 |
| SOMEWHAT LIKELY | 49 | 57 | 46 | 73 | 51 |
| SOMEWHAT UNLIKELY | 23 | 17 | 14 | 14 | 22 |
| NOT VERY LIKELY | 15 | 4 | 18 | 0 | 12 |
| Percent respondents estimating the "chances" of a major earthquake seriously damaging their home in the next 10 years | | | | | |
| EXTREMELY HIGH | 28 | 31 | 24 | 43 | 30 |
| HIGH | 34 | 31 | 29 | 38 | 29 |
| MODERATE | 15 | 8 | 10 | 10 | 13 |
| LOW | 10 | 12 | 14 | 0 | 12 |
| EXTREMELY LOW | 13 | 19 | 24 | 10 | 16 |
| Percent respondents estimating the dollar damage to their home and | | | | | |

contents from a major earthquake strike in the next 10 years

| | | | | |
|---|---|---|---|---|
| $0-1,000 | 12 | 4 | 24 | 0 |
| 13 | | | | |
| $1,001-5,000 | 4 | 13 | 24 | 0 |
| 10 | | | | |
| $5,001-10,000 | 12 | 9 | 10 | 14 |
| 11 | | | | |
| $10,001-20,000 | 7 | 4 | 0 | 7 |
| 5 | | | | |
| $20,001-50,000 | 19 | 30 | 14 | 43 |
| 24 | | | | |
| $50,001-100,000 | 24 | 22 | 19 | 21 |
| 20 | | | | |
| $100,001+ | 22 | 17 | 9 | 14 |
| 17 | | | | |

Percent respondents estimating the damage of the next major earthquake
relative to the 1994 Northridge earthquake

| | | | | |
|---|---|---|---|---|
| GREATER | 22 | 31 | 41 | 32 |
| 28 | | | | |
| ABOUT THE SAME | 35 | 48 | 27 | 27 |
| 33 | | | | |
| LESS THAN | 13 | 0 | 5 | 18 |
| 10 | | | | |
| DON'T KNOW | 29 | 20 | 27 | 23 |
| 29 | | | | |

**Table 5**
**Percent of Respondents' Preparedness to Future Earthquakes Measured by Home Mitigation Long-Term, Higher-Cost Measures (by Ethnic Group and Total Sample)**

| | White | Asian | Hispanic | Black |
|---|---|---|---|---|
| TOTAL SAMPLE | | | | |

| | | | | |
|---|---|---|---|---|
| Percent that took measures to protect the house and its foundation | | | | |
| YES | 53 | 32 | 32 | 32 |
| 38 | | | | |
| NO | 47 | 68 | 68 | 68 |
| 62 | | | | |
| If "NO", give main reason why not | | | | |
| TOO EXPENSIVE | 42 | 43 | 43 | 53 |
| 44 | | | | |
| WON'T HELP | 19 | 29 | 14 | 6 |
| 15 | | | | |
| INSURANCE PROTECTS | 10 | 0 | 0 | 12 |
| 6 | | | | |
| PROCRASTINATED | 26 | 29 | 43 | 29 |
| 33 | | | | |
| TOO BUSY | 3 | 0 | 0 | 0 |
| 3 | | | | |

**Table 6**
**Percent of Respondents' Preparedness to Future Earthquakes**
**Measured by Short-Term, Lower-Cost Household Activities**
**(by Ethnic Group and Total Sample)**

| | White | Asian | Hispanic | Black |
|---|---|---|---|---|
| TOTAL SAMPLE | | | | |
| Sought information from formal sources | | | | |
| | 42 | 21 | 27 | 29 |
| 33 | | | | |
| Sought information from informal sources | | | | |
| | 49 | 40 | 48 | 47 |
| 45 | | | | |
| Stockpiled emergency supplies | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | 67 | 50 | 64 | 46 | 59 |
| Devised an earthquake plan for family | | | | | |
| | 41 | 27 | 41 | 68 | 41 |
| Knows what to do before, during and after an earthquake | | | | | |
| | 93 | 67 | 77 | 86 | 81 |
| Purchased earthquake insurance | | | | | |
| | 39 | 21 | 18 | 19 | 28 |

**Table 7**
**Percent of Respondents' Perceptions of Household Preparedness to Future Earthquakes and Knowledge of Neighbors' Preparedness (by Ethnic Group and Total Sample)**

| | White | Asian | Hispanic | Black | TOTAL SAMPLE |
|---|---|---|---|---|---|
| Percent that reported the readiness of their own household | | | | | |
| VERY PREPARED | 11 | 0 | 9 | 5 | 6 |
| SOMEWHAT PREPARED | 58 | 37 | 64 | 43 | 50 |
| NOT VERY PREPARED | 29 | 50 | 18 | 33 | 34 |
| NOT PREPARED AT ALL | 4 | 13 | 9 | 19 | 9 |
| Percent that know of others who have prepared | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | 67 | 30 | 55 | 46 | 53 |

**Table 8**
**Percent of Respondents' Knowledge of Earthquake Handbook Availability and Location of Handbook Level of Difficulty of Handbook**
**(by Ethnic Group and Total Sample)**

| | White | Asian | Hispanic | Black | TOTAL SAMPLE |
|---|---|---|---|---|---|
| Percent that know about the handbook | | | | | |
| YES | 28 | 17 | 18 | 43 | 21 |
| NO | 72 | 83 | 82 | 57 | 79 |
| If "YES," percentage that already obtained a copy | | | | | |
| | 63 | 33 | 40 | 60 | 56 |
| If, "No, but plan to get one," percent that know where to obtain a copy | | | | | |
| | 94 | 83 | 75 | 75 | 85 |
| If, "YES," that reported the level of difficulty of the handbook | | | | | |
| VERY EASY | 38 | 20 | 0 | 67 | 35 |
| EASY | 31 | 40 | 50 | 33 | 35 |
| SOMEWHAT DIFFICULT | 13 | 0 | 0 | 0 | 7 |
| VERY DIFFICULT | 0 | 0 | 0 | 0 | 0 |
| NOT READ YET | 19 | 40 | 50 | 0 | |

# APPENDIX B
# COMPILATION OF DATA FROM QUICK RESPONSE FIELD TRIP
## Reported by Gender

**Table 9**
**Percent of Respondents Who Participated in the Survey**
**(by Gender)**

| | MEN | WOMEN |
|---|---|---|
| Percent Responding | 48 | 52 |

**Table 10**
**Percent of Respondents Who Have Heard of the Revised, Upgraded Earthquake Probabilities for Southern California, and Percent of Respondents Reporting Type of Source Used to Obtain Information**
**(by Gender)**

| | MEN | WOMEN | TOTAL SAMPLE |
|---|---|---|---|
| Percent who "heard" the low-key warning message | 60 | 47 | 52 |
| Percent reporting the primary source of hearing the message | | | |
| TV | 72 | 72 | 73 |

| | | | |
|---|---|---|---|
| RADIO | 11 | 15 | 14 |
| NEWSPAPER | 26 | 37 | 29 |
| BROCHURES | 0 | 5 | 3 |
| INTERPERSONAL | 2 | 13 | 8 |

Percent giving a secondary source of hearing the message

| | | | |
|---|---|---|---|
| TV | 28 | 12 | 20 |
| RADIO | 39 | 24 | 33 |
| NEWSPAPER | 33 | 31 | 30 |
| BROCHURES | 11 | 8 | 8 |
| INTERPERSONAL | 20 | 23 | 22 |

**Table 11**
**Percent of Respondents Who Determined the Messaged Consistent and Understandable (by Gender)**

| | MEN | WOMEN | TOTAL SAMPLE |
|---|---|---|---|
| Percent judging the consistency of message across sources | | | |
| CONSISTENT | 50 | 54 | 47 |
| CONFLICTING | 21 | 21 | 26 |
| NO OPINION | 30 | 26 | 27 |
| Percent judging the level of difficulty in understanding message | | | |

| | | | |
|---|---|---|---|
| VERY EASY | 37 | 8 | 21 |
| EASY | 33 | 74 | 52 |
| SOMEWHAT DIFFICULT | 13 | 18 | 17 |
| VERY DIFFICULT | 4 | 0 | 3 |
| NOT SURE | 13 | 0 | 7 |

**Table 12**
**Perceptions of Vulnerability to Future Earthquakes Measured by the Beliefs of a Future Earthquake, Estimates of Chances (Probabilities), and Estimates of Dollar Damage (by Gender)**

| | MEN | WOMEN | TOTAL SAMPLE |
|---|---|---|---|
| Percent respondents estimating the likelihood of home being seriously damaged by a major earthquake in the next 10 years: | | | |
| VERY LIKELY | 17 | 15 | 15 |
| SOMEWHAT LIKELY | 46 | 65 | 51 |
| SOMEWHAT UNLIKELY | 21 | 17 | 22 |
| NOT VERY LIKELY | 16 | 3 | 12 |
| Percent respondents estimating the "chances" of a major earthquake serio usly damaging their home in the next 10 years: | | | |
| EXTREMELY HIGH | 24 | 40 | 30 |

| | | | |
|---|---|---|---|
| HIGH | 27 | 36 | 29 |
| MODERATE | 20 | 6 | 13 |
| LOW | 11 | 8 | 12 |
| EXTREMELY LOW | 18 | 10 | 16 |

Percent respondents estimating the dollar damage to their home and contents
from a major earthquake strike in the next 10 years:

| | | | |
|---|---|---|---|
| $0-1,000 | 14 | 8 | 13 |
| $1,001-5,000 | 5 | 11 | 10 |
| $5,001-10,000 | 19 | 8 | 11 |
| $10,001-20,000 | 2 | 0 | 5 |
| $20,001-50,000 | 24 | 28 | 24 |
| $50,001-100,000 | 21 | 24 | 20 |
| $100,001+ | 16 | 20 | 17 |

Percent respondents estimating the damage of the next major earthq
uake relative to the 1994 Northridge earthquake:

| | | | |
|---|---|---|---|
| GREATER | 29 | 29 | 28 |
| ABOUT THE SAME | 40 | 29 | 33 |
| LESS THAN | 11 | 10 | 10 |
| DON'T KNOW | 20 | 33 | 29 |

**Table 13**
**Percent of Respondents' Preparedness to Future Earthquakes**

**Measured by Home Mitigation Long-Term, Higher-Cost Measures (by Gender)**

| | MEN | WOMEN | TOTAL SAMPLE |
|---|---|---|---|
| Percent that took measures to protect the house and its foundation | | | |
| YES | 37 | 41 | 38 |
| NO | 63 | 59 | 62 |
| If, "NO," give main reason why not: | | | |
| TOO EXPENSIVE | 47 | 43 | 44 |
| WON'T HELP | 13 | 17 | 15 |
| INSURANCE PROTECTS | 4 | 7 | 6 |
| PROCRASTINATED | 33 | 33 | 33 |
| TOO BUSY | 2 | 0 | 3 |

**Table 14**
**Percent of Respondents' Preparedness to Future Earthquakes Measured by Short-Term, Lower-Cost Household Activities (by Gender)**

| | MEN | WOMEN | TOTAL SAMPLE |
|---|---|---|---|
| Sought information from formal sources | 27 | 40 | 33 |
| Sought information from informal sources | | | |

| | | | |
|---|---|---|---|
| | 44 | 48 | 45 |
| Stockpiled emergency supplies | | | |
| | 57 | 60 | 59 |
| Devised an earthquake plan for family | | | |
| | 46 | 40 | 41 |
| Knows what to do before, during and after an earthquake | | | |
| | 83 | 83 | 81 |
| Purchased earthquake insurance | | | |
| | 27 | 31 | 28 |

**Table 15**
**Percent of Respondents' Perceptions of Household Preparedness to Future Earthquakes and Knowledge of Neighbors' Preparedness**
**(by Gender)**

| | MEN | WOMEN | TOTAL SAMPLE |
|---|---|---|---|
| Percent that reported the readiness of their own household | | | |
| VERY PREPARED | 9 | 5 | 6 |
| SOMEWHAT PREPARED | 50 | 52 | 50 |
| NOT VERY PREPARED | 30 | 34 | 34 |

| | | | |
|---|---|---|---|
| NOT PREPARED AT ALL | 11 | 10 | 9 |

Percent that know of others who have prepared

| | | |
|---|---|---|
| | 59 | 48 53 |

**Table 16**
**Percent of Respondents' Knowledge of Earthquake Handbook Availability and Location of Handbook Level of Difficulty of Handbook (by Gender)**

| | MEN | WOMEN | TOTAL SAMPLE |
|---|---|---|---|
| Percent that know about the handbook | | | |
| YES | 19 | 29 | 21 |
| NO | 81 | 71 | 79 |
| If "YES," percent that already obtained a copy | 38 | 67 | 56 |
| If "NO," but plan to get one, percent that know where to obtain a copy | 77 | 90 | 85 |
| If, "YES," percent that reported level of difficulty of the handbook | | | |
| VERY EASY | 44 | 33 | 34 |
| EASY | 33 | 33 | 35 |

| | | |
|---|---|---|
| SOMEWHAT DIFFICULT | 0 | 10 |
| 7 | | |
| VERY DIFFICULT | 0 | 0 |
| 0 | | |
| NOT READ YET | 22 | 24 |
| 23 | | |

# APPENDIX C

SURVEY INSTRUMENT
Survey for Quick Response Grant
RISK COMMUNICATION IN SOUTHERN CALIFORNIA

LOCATION: _____

Q-1 Have you heard of a recently revised prediction that increases
the chances of a major earthquake happening in southern California?

1 YES
[IF YES] About when did you hear this prediction?
_____ [date]

[INTERVIEWER:
CONTINUE ON TO QUESTION, Q-2]

2 NO
[INTERVIEWER: IF NO,
GO TO QUESTION, Q-6 ]

Q-2 How did you hear about the prediction?

_____TELEVISION
_____RADIO
_____NEWSPAPER
_____BROCHURES

_____FAMILY AND FRIENDS
_____OTHER_____

Q-3 Are there any other ways that you heard about the prediction?

_____TELEVISION
_____RADIO
_____NEWSPAPER
_____BROCHURES
_____FAMILY AND FRIENDS
_____OTHER_____

Q-4 Do you feel that the information was consistent information, or do you feel that the information conflicts among sources?

CONSISTENT CONFLICTING NO OPINION

Q-5 How easy to understand was this information?

1 VERY EASY
2 EASY
3 SOMEWHAT DIFFICULT
4 VERY DIFFICULT
5 unsure

Q-6 How likely do you think it is that your own home will be seriously damaged by a major earthquake in the next ten years. Would you say "very likely," "somewhat li kely," "somewhat unlikely," or "not very likely."

1 VERY LIKELY
2 SOMEWHAT LIKELY
3 SOMEWHAT UNLIKELY
4 NOT VERY LIKELY

Next, I'll ask you to give me a 1 out of so many chances for an earthquake happening in the next ten years. I'm looking for a number. First, here's a statement:

Q-7 Some people have estimated the chances of a strong earthquake (of the size that struck San Francisco in 1906) happening in southern California in the next ten years as 1 out of 5.

Now, think about the chances of a 1906 San Francisco-type earthquake causing more than 10 percent damage to your own home in the next 10 years? Again, one out of how many would be your estimate of the chances.

1 out of _____ (number)

Q-8 What do you think the dollar damage would be to the contents of your house as well as the house itself?

$_____ (dollar value of damage to the house and contents)

Q-9 How damaging do you think the next earthquake will be relative to the 1994 Northridge Earthquake? Do you think that the next one will be greater, about the same, or less damaging?

GREATER ABOUT THE SAME LESS DON'T KNOW

Q-10 Where do you think the location will be of the next major earthquake in southern California?

_____

[RECORD LOCATION]

Q-11 Now, here are some general statements that some

people made about
scientists, technology, and earthquakes. Again, please tell me if you
agree, disagree, or have no opinion

| | AGREE | DISAGREE | NO OPINION |
|---|---|---|---|
| There is nothing I can do about earthquakes so there is no reason to prepare for one. | 1 | 2 | 3 |
| Scientists will eventually be able to predict earthquakes. | 1 | 2 | 3 |
| Any preparations I make for earthquakes will play an important part in saving my life or property during an earthquake in the FUTURE. | 1 | 2 | 3 |
| Preparations I made in the PAST played an important part in saving my life or property during an earthquake. | 1 | 2 | 3 |
| Chance or luck will play an important part in saving my life or property during an earthquake. | 1 | 2 | 3 |
| Psychics can predict earthquakes. | 1 | 2 | 3 |

Scientists should continue
to try to predict 1 2
3
earthquakes.

Q-12 How damaging do you think the next earthquake will be relative to
the 1994 Northridge Earthquake? Do you think that the next one will be
greater, about the same, or less damaging?

GREATER ABOUT THE SAME LESS DON'T KNOW

Q-13 Have you done anything to minimize the amount of damage an
earthquake might cause to your home?

YES
If YES, what did you do? COST WHEN (date)

_____

_____

NO
There are alot of reasons why someone may not take an action.
Do you have any specific reason(s) why you haven't taken steps to
protect you home?

(ASK FOR MORE THAN ONE REASON:)

1 TOO EXPENSIVE
2 WON'T HELP
3 INSURANCE WILL COVER COSTS
4 NEVER GOT AROUND TO IT
5 DON'T HAVE THE TIME
6 NOT NECESSARY-Won't happen again

soon.

7 OTHER
(what?)_____

Q-14 Can you tell me, YES or NO, if you've done any of the following to
prepare for earthquakes?

Did you,
YES NO SEEK ADDITIONAL INFORMATION FROM FORMAL SOURCES?
(like the Red Cross, government agencies, earthquake
organizations)

Did you,
YES NO SEEK ADDITIONAL INFORMATION FROM INFORMAL SOURCES?
(like family and friends)

YES NO Did you, stockpile emergency supplies?

YES NO Did you, develop an earthquake plan either at home, in
your neighborhood, or at school or work?

YES NO Did you, find out what to do during an earthquake, or
immediately after?
(like duck and cover drills)

YES NO Did you buy earthquake insurance?

YES NO Are there any other measures that you took that I
didn't mention?

_____

_____

Q-15 YES NO
Do you know anyone such as a neighbor, friend or

relative
who has done anything to get ready for the next earthquake?

Q-16 How prepared do you think your household is for an earthquake?
Would you say,

_____VERY PREPARED
_____SOMEWHAT PREPARED
_____NOT VERY PREPARED
_____NOT PREPARED AT ALL

Q-17 And finally, have you heard about the new earthquake information
guide book from the southern California Earthquake Center?

_____YES
_____NO

Q-18 Do you have a copy of the information guide book?

_____YES
_____ NO, but plan to get one
_____NO
{probe} Do you know where to get one?

_____YES,

[record location that they tell you]:_____

_____NO

How easy to understand was this information guide? Would you say,

1 VERY EASY
2 EASY
3 SOMEWHAT DIFFICULT

4 VERY DIFFICULT
5 unsure

[Note if the person is male or female.]_____M_____F

Thank you so much for your time. your answers will be very helpful to this study.

NOTES (ADDITIONAL INFORMATION):

**Return to Hazards Center Home Page**

February 23, 1997

*hazctr@colorado.edu*