I. Material:

Title: Report on the Psychological Research for Countermeasures Against Earthquake Disasters--Earthquake and Human Behavi (Daishinsai Taisaku no tameno Shinrigaku teki Chosa Kenkyu--Jishin to Ningen Kodo)

Author: Guard Police Psychology Research Society (Keibi Shinrigak Kenkyukai)

Publisher and Year: Tokyo Metropolitan Police Board (Keishi-Cho), 1971

II. Study:

(1) Agent and/or Event

Type of Disaster: Earthquakes and hypothetical earthquakes

Date of Occurrence:

Location:

Casualties and Damage: Not mentioned

(2) Method

Method in detail: See the attached

Date of Study: See the attached

III. Hypothesis and Findings.

This book consists of summaries of 10 research studies by Guard Police Psychology Research Society.

Chapter 1 - Research on the 1964 Niigata Earthquake

I. Method

A. After the preliminary research by interviewing, field work, and questionnaires, a questionnaire survey was conducted with 600 residents. The sampling procedures were that nine areas in Niigata city were chosen by area sampling. and then 600 residents were chosen by preportionate sampling.

B. Date of Study: December, 1964

II. Results

A. Emergency Responses

1. Rushing-out or Staying-inside

a) people who rushed out of houses	60.3%
b) people who stayed inside houses	22.5%
c) other responses	17.2%

2. People who left fire in home as it was, when they rushed out; people who rushed out 64.7%

3. Evacuation

Time of	Ratio of evacuation
a) 20 minutes after the major quake	30.0%
b) 2 hours after the major quake	60.0%

4. Factors impeding evacuation were

a) attachment to household goods	37.0%
b) attachment to family members away in other locations (i.e., work)	13.4%
c) normalcy bias	33.0%

5. Sources of information about earthquake

a) NHK (a public broadcasting system)	29.9%
b) Radio Niigata (a commercial broadcasting system)	29.9%
c) other people	18.2%
d) a newspaper extra	9.8%
e) police	7.6%

6. Rumors

a) people who heard a rumor	40.3%
(1) the ratio decreased as time passed	
b) places where people heard a rumor	
(1) controllable places (shelter, home, office)	54.1%
(2) uncontrollable places (street, outside)	45.9%
c) media in which rumor occurred	
(1) neighbors	20.6%
(2) other people	45.4%
(3) radio (people's misunderstandings of radio reports)	20.6%
d) degree of credence to rumors	
(1) people who gave credence	52.6%
(2) people who did not give credence	14.4%

7. Workers' responses

a) Over one half of workers deserted their posts or jobs and went home without permission of their supervisors or consultations with their colleagues.

B. Lessons
   1. Since it is unavoidable for people to temporarily lose their composure, training or drills should be conducted focusing on how people might regain their composure, instead of telling them not to be upset.
   2. Since it is hard to extinguish fire at a critical moment, people should be taught to say "Check fire" loudly.
   3. Accurate information should be given to people as soon as possible.
   4. The stories which come from strangers, especially the stories which contain the words such as "definitely," "totally," "all," "completely," and the like, should be regarded as rumors.

Chapter 2 - Research on the Matsushiro Earthquakes

I. Method
   A. After preliminary field work, four researchers and two police representatives carried out interviews with five groups
      1. Town elites
      2. Youths
      3. Housewives
      4. Ordinary residents
      5. Teachers
   B. Date of Study: June 3-5, 1966

II. Results
   A. Psychological acclimatization to the quakes was the most apparent tendency among people.
   B. Through their experiences, some disaster subcultures were developed, especially concerning people's self-defensive measures.
      1. To consider what furniture could serve as sheltering spaces
      2. To put valuables in a sack so they could easily be removed
      3. To keep a set of clothes outside the home
      4. To put a vinyl bag filled with sand by an oil stove (At a critical moment, the sand which comes out from the melted bag will put fire out. What people have to do is only to put the vinyl bag on the top of the oil stove.)
   C. Countermeasures by elementary and junior high schools
      1. To inspect and reinforce the structure of buildings
      2. To keep emergency exits open all the time
      3. To prohibit the wearing of wooden clogs in schools
      4. To force children to wear hats and not to carry anything when on playground or elsewhere outside
      5. To warn and instruct children about dangerous places by taking and showing them the places
      6. To set up several shelters on the routes to schools or homes
      7. To sew, on the inside pocket, a piece of cloth on which the child's name, address, and type of blood are written
      8. To use a sitting mat as a protective head covering

Chapter 3 - Research on the 1968 Ebino Earthquake

I. Method
   A. Group interviews, individual interviews, and questionnaire surveys
   B. Samples
      1. Students of an elementary school (36) and a junior high school (34)--group interviews
      2. Residents of five areas (93)--individual interviews
      3. Residents who had the most severe damage in the areas (8)--in-depth interviews
      4. Five hundred questionnaires were delivered and 455 of them were collected by police

II. Results
   A. Nobody was killed by collapses of houses, because Japanese wooden houses are flexible enough to stand the quake, and rarely fell.
   B. Responses during the quake
      1. Rushing-out of houses 38.9%
      2. Being upset 14.0%
      3. Putting fires out 11.2%
      4. No actions 12.1%
   C. When the quake occurred, approximately two thirds of the people were using fires. Among them, only about half succeeded in putting the fires out during the quake.
   D. People who heard a rumor 74.3%
      1. The rumors they heard were about damages due to the quake or other secondary threats. As time passed, more people heard a rumor.
   E. Troubles after the quake
      1. Shortage of drinking water 80.2%
      2. Shortage of foods 56.0%
      3. Lack of lights 35.0%
      4. No place to sleep 29.6%

Chapter 4 - Research on the 1968 Tokachi-Oki Earthquake

I. Method
   A. Observations and Interviews
   B. No further information about the methods used
   C. Date of Study: May 18-22, 1968

II. Results
   A. Determinants of responses during the quake
      1. The person's location at the time of the quake
      2. Behavior of other people around the person
      3. Knowledge about appropriate actions
      4. The person's responsibility in an organization
   B. The ferro-concrete buildings did not suddenly collapse, but gradually fell down thus allowing people inside to go out.
   C. Some findings about drivers' responses and traffic conditions
      1. When the quake occurred, most drivers thought that they had a flat tire, and stopped driving to check tires.

2. Most drivers stood outside of their cars to observe the situation.
3. After they drive their cars back home, people did not drive for a day or two. Three or four days after the quake, the traffic conditions in the areas were worse than ever.
4. Almost all traffic signals in the impact area did not function.

Chapter 5 - Research on the 1971 Los Angeles Earthquake

I. Method
   A. Interviews with residents and with officials
   B. No further details about the methods used

II. Results
   A. The earthquake disaster happened at a fortunate time.
   B. Although there occurred 350 fires in the city, they did not spread. The wider spaces in American cities can explain this lack of spread of fires.
   C. Some factors which prevented panic
      1. The wide open spaces
      2. The high accessibility to safe places
      3. No fires or smoke which threatened people
      4. A lack of feelings that the situation was critical

Chapter 6 - How do Tokyo residents think about and prepare against an earthquake disaster?

See the summary of Report on the Psychological Study for Countermeasures Against Earthquake Disaster--How Do Tokyo Residents Think About and Prepare Against an Earthquake Disaster? Vol. 1.

Chapter 7 - How do companies, schools, and neighborhoods respond to an earthquake disaster?

See the summary of Report on the Psychological Study for Countermeasures Against Earthquake Disaster--How Do Companies, Schools, and Neighborhoods Respond to an Earthquake Disaster? Vol. 2.

Chapter 8 - How should Tokyo residents respond to an earthquake disaster in underground shopping malls or on bustling streets?

See the summary of Report on the Psychological Study for Countermeasures Against Earthquake Disaster--How Should Tokyo Residents Respond to an Earthquake Disaster in Underground Shopping Malls or on Bustling Streets? Vol. 3.

Chapter 9 - Drivers' consciousness about and behaviors in response to an earthquake disaster

See summary of Report on the Psychological Study for Countermeasures Against Earthquake Disaster--Drivers' Consciousness About and Behaviors in Response to an Earthquake Disaster, Vol. 4.

Chapter 10 - Evacuation Behaviors

See the summary of Report on the Psychological Study for Countermeasures Against Earthquake Disaster--Evacuation Behavior, Vol. 5.

Chapter 11 - People's Response on Subways

See the summary of Report on the Psychological Study for Countermeasures Against Earthquake Disaster--Evacuation Behavior, Vol. 5.

I. Material:

Title: Report on the Psychological Research for Countermeasures Against Earthquake Disasters--On Evacuation Behavior to the Designated Evacuation Places, Vol. 6. (Daishinsai Taisaku no Tameno Shonrigakuteki Chosa Kenkyu Shitei Hinan Basho eno Hinan Kodo, Dai 6-ho)

Author: Guard Police Psychology Research Society (Keibi Shinrigaku Kenkyukai)

Publisher and Year: Tokyo Metropolitan Police Board (Keishi-Cho), 1971

II. Study:

(1) Agent and/or Event

Type of Disaster: Hypothetical earthquake

Date of Occurrence:

Location: Tokyo, Japan

Casualties and Damage:

(2) Method

Method in detail: See the attached

Date of Study: See the attached

III. Hypothesis and Findings.

I. Method

A. Questionnaires distributed and collected by police.

B. Samples: 72 police stations in Tokyo chose 60-200 persons on their own accord. The total number of respondents was 9,525.

C. Return Ratio: 9,068 96.0%

D. Date of Study: May 6-15, 1971

II. Results

A. Damage prediction

People predicted the following as highly possible damages due to an earthquake

1. fires
2. collapses of houses
3. breakdowns of life-line functions

People who predicted floods were significantly different in choosing an evacuation place from people who did not predict floods.

B. Evacuation behavior

1. Time of evacuation

a) at a very early stage	20.0%
b) at an early stage	30.0%
c) when the order is issued	34.0%
d) when the situation becomes dangerous	12.0%

Women or the elderly are more likely to indicate they will evacuate at an early stage in comparison with men or the young.

Residents in shopping areas or industrial areas tend to indicate they will evacuate at an early stage.

People who predict greater damages tend to indicate they will evacuate at an early stage.

People who live in the area far from the designated evacuation place tend to indicate they will evacuate at an early stage.

2. How to evacuate

a) on foot	90.0%
b) by car, motorcycle, or bicycle	5.0%

The unmarried young people tend to indicate they will evacuate by motorcycle or bicycle.

3. If an earthquake hits when people are outside

a) people will try to go home	40.0%
b) people will go to the nearby evacuation place	30.0%
c) people will conform to official directions	10.0%

People who have children or the elderly at home, or people who live in their own wooden houses indicate they will try to go home as soon as possible.

4. Places they will evacuate to

a) to the designated evacuation place	29.0%

As the distance to the designated evacuation place increases, the number of people who will evacuate to the place decreases.

People in shopping areas or office areas indicate they are more likely to evacuate to the designated evacuation place than people in residential areas.

5. Recognition of the designated evacuation place
   a) people who know the designated evacuation place 50.0%

The factors which affect the degree of people's recognition about the designated evacuation place
   a) distance; if it is less than two kilometers, the degree of recognition is high
   b) whether or not people have children or elderly in their homes; if they have, the degree of recognition is high
   c) age; men in their 40s or 50s, or women in their late teens tend to recognize an evacuation place
   d) when they evacuate; people who would evacuate in accordance with the evacuation order tend to know the evacuation place well
   e) how they perceive the designated evacuation place; people who perceive it as appropriate or safe tend to know about it

6. Reasons why they do not evacuate to the designated evacuation place
   a) because they do not know about the place 42.4%
   b) because the place is too far 35.9%
   c) because the place does not seem safe 7.0%

People who live within a radius of 5 kilometers of the place tend to be strongly affected by the degree of their recognition of the place, while people who live in the area over 5 kilometers from the place tend to be strongly affected both by the degree of their recognition and by the distance. However, people who live in the area over 10 kilometers from the place tend to be strongly affected by the degree of their recognition with the weak influence being that of distance.

C. Opinions on evacuation drills
   1. People who are favorable about the drills 97.0%

The ratio does not vary according to sex, but according to age; that is, people in their 30s, 40s, or 50s are more likely to be favorable to the drills than people in their 20s or 60s.

The ratio does not vary according to the kinds of areas they live in. However, residents in areas where there are some sources of danger, or in the low grounds which are susceptible to floods are more likely to be favorable to the drills than people in other areas.

D. What people expect a local government to do.
   1. What people expect when or just after they evacuate.
      a) food supply, drinking water, or other necessary goods 73.6%
      b) aids for them to communicate with their families 52.0%
      c) guides for them on how to evacuate 44.0%

I. Material:

Title: Daishinsai Taisaku no tameno Shinrigakuteki Chosa Kenkyu, Vol. 7, Chiiki Bosai Soshiki ni kansuru Chosa (Reports on the Psychological research for Counter-measures against Earthquake Disasters, Vol. 7. Resear on the Community Organization for the Prevention of Disaster)

Author: Guard Police Psychology Research Society

Publisher and Year: Guard Police Psychology Research Society and Tokyo Metropolitan Police Department, 1972

II. Study:

(1) Agent and/or Event

Type of Disaster: Hypothetical Earthquake

Date of Occurrence:

Location: Tokyo

Casualties and Damage:

(2) Method

Method in detail: Questionnaire
Sample: 3,600 Valid Responses: 3,451 (96.6%)
Tokyo Metropolitan Police Department ordered each of 72 police stations in Tokyo to deliver and to collect 50 questionnaires, which makes 3,600

Date of Study: May 30-June 8, 1972

III. Hypothesis and Findings.

I. Percentage of those sampled who think a great earthquake will occur 85.0%
   A. Percentage of people in their 40s or 50s who foresee the possibility of a great earthquake 90.0%
   B. Percentage of people in their 20s who foresee the possibility of a great earthquake 75.0%
   C. People in their 40s or 50s are more likely to foresee the possibility of a great earthquake than are people in their 20s.
   D. Of the people who foresee the possibility of a great earthquake, the percentage of those who prepare against it is 93.6%
   E. Percentage of those sampled who think that certain preparations are necessary for an earthquake 84.0%
   F. Of the people who prepare for an earthquake, percentages of the major preparations are
      1. Discussions at home on emergency responses 68.0%
      2. Confirming places of evacuation and routes 51.0%
      3. Preparation for removal of valuables 43.0%
   G. Percentage of people who know the location of the designated evacuation area 58.0%
   H. Percentage of people who know the location of the designated evacuation area but do not know how to reach it 30.0%
   I. Percentage of people who can effecitvely utilize the designated evacuation area 26.0%
   J. Percentage of participation in evacuation training in a community
      1. Postively participate 37.7%
      2. Participate if asked 42.0%
      3. Do not know 12.9%
      4. Reluctant to participate 5.1%
      5. Do not participate 2.1%
   K. Percentage of those who positively participate in the drill or training
      1. Men 41.4%
      2. People in their 40s 41.5%
      3. People in their 50s 43.6%
      4. Women 33.9%
      5. People in their 20s 26.6%
      6. People who do not care about an earthquake 27.0%
      7. Men, people in their 40s or 50s, and people who foresee a great earthquake are more likely to positively participate in the drill or training than women, people in their 20s, and people who do not care about an earthquake.
   L. Percentage of those who feel neighborhood organization against disasters is necessary
      1. Necessary 78.7%
      2. Opposed 7.9%
   M. Percentage of the major reasons for opposing neighborhood organization against disasters
      1. In emergency situations, nobody can afford to take care of

others; therefore, the neighborhood organization would be useless in emergency periods. 53.5%

2. What the neighborhood organization tries to do in emergency periods is what the national or local government should do. That is not our task. 18.1%
3. Since the neighborhood organization has neither responsibilities nor authority, it would be useless in emergency periods. 12.2%

N. Percentage of opinions about voluntary activities in emergency periods (the voluntary activities in (a) prevention and extinction of fires, (b) guiding evacuees, (c) traffic control, (d) first aid, (e) distribution of water and food, (f) communication, (g) maintaining social order, (h) recovery activities, and (i) prevention of epidemics):
1. Positive attitude toward voluntary activities 73.6%
2. Negative attitude toward voluntary activities 5.7%
3. Don't know or not applicable 20.7%

O. Percentage of positively accepted voluntary activities
1. (e) Distribution of water and food 84.8%
2. (d) First aid 80.2%
3. (h) Recovery activities 79.5%
4. Probably the fact that those activities have been voluntarily performed in the past explains why they are positively accepted.

P. Percentage of less positively accepted voluntary activities
1. (c) Traffic control 61.7%
2. (g) Maintenance of social order 62.7%
3. (f) Communication 66.0%
4. Probably the fact that these activities cannot be performed by ordinary citizens in their every day lives explains why they are not as greatly accepted.

I. Material:

Title: Report on the Psychological Research for Countermeasures Against Earthquake Disaster--Tokyo Citizens' Expectations for Police, Vol. 8. (Daishinsai Taisaku no tameno Shinrigakuteki Chosa Kenkyu--Keisatsu Katsudo ni taisuru Tomin no Kitai. Dai 8-ho)

Author: Guard Police Psychology Research Society (Keibi Shinrigaku Kenkyukai)

Publisher and Year: Tokyo Metropolitan Police Board (Keishi-Cho), 1973

II. Study:

(1) Agent and/or Event

Type of Disaster: Hypothetical earthquake

Date of Occurrence: Not mentioned

Location: Tokyo, Japan

Casualties and Damage:

(2) Method

Method in detail: See the attached

Date of Study: See the attached

III. Hypothesis and Findings.

I. Method

A. Questionnaires delivered and collected by police.

B. Samples: 7,100 individuals chosen by 72 police stations in Tokyo

C. Date of Study: May 10-23, 1973

D. Return Ratio: 6,789 95.6%

II. Results

A. People who expect a great earthquake 82.2%

1. People in their 40s or 50s are more likely to expect a great earthquake than people in their 20s.

2. People who expect a great earthquake tend to actively participate in neighborhood organizations.

B. How people prepare against an earthquake

1. Conversations at home 63.2%

2. Preparations for saving valuables 39.0%

3. Talking with neighbors or in neighborhood organizations 27.3%

4. Participating in the drills 16.9%

As people grow older, the degree of preparation increases.

C. The degree of recognition of the designated evacuation place 62.0%

1. Percentage of ratio increase compared to previous year 5.0%

D. What Tokyo citizens expect of the police department in the pre-disaster period.

1. Assuring that there be safe evacuation places and letting citizens know of such places 44.4%

2. Preparations for guiding or leading citizens to a safe evacuation place 38.2%

3. Preparations for quickly providing citizens with food or drinking water 33.0%

4. Making effective plans for an emergency communication system 22.8%

5. Developing evacuation routes and informing citizens of their existence 21.0%

E. What information citizens expect from the police department

1. Information on evacuation places 25.6%

2. Information on rescue and medical service systems 16.8%

3. Advice on evacuation 13.1%

4. Information on damages 12.6%

5. Information on social order 11.0%

6. Traffic information 8.3%

Generally speaking, citizens expect information for protecting their own lives.

The older citizens tend to expect the information on damages or on social order, while the younger citizens tend to expect the information on rescue and medical service systems.

F. How do citizens expect the police department to guide or lead them in evacuating?

1. Advising them about the time of evacuation 80.1%

2. Advising them on the place of evacuation 85.0%

3. Leading citizens to a safe evacuation place 77.1%

4. Advising citizens what they should bring in evacuating 58.8%

G. What the citizens expect as to traffic control.
   1. People who think that police can effectively cope with traffic problems after a quake. 80.0%
H. What citizens expect about the maintenance of social order.
   1. Prevention of looting 71.0%
   2. Guarding of storages of emergency goods and other important facilities 79.0%
   3. Prevention of rumors 61.0%
   4. Prevention of crimes and arrest of criminals 81.0%
I. What the citizens expect from several organizations related to a disaster.
   1. Percentage expecting leading of citizens to a safe evacuation place
      a) Ratios of citizens who expect if from
         (1) police 85.6%
         (2) fire departments 28.4%
         (3) neighborhood organizations 28.0%
         (4) a broadcasting company 20.6%
         (5) a local government 20.2%
   2. Provision of evacuation places
      a) Ratios of citizens who expect it from
         (1) police 76.8%
         (2) a local government 44.4%
         (3) neighborhood organizations 30.8%
         (4) fire departments 20.2%
   3. Expecting that citizens will be provided with foods and/or drinking water
      a) Ratios of citizens who expect it from
         (1) a local government 68.6%
         (2) neighborhood organizations 33.0%
         (3) a public health center 28.6%
         (4) police 25.8%
   4. Ratios of citizens who expect medical services from
      a) a public health center 86.6%
      b) a local government 51.6%
   5. Provision of first aid
      a) Ratios of citizens who expect it from
         (1) fire departments 56.4%
         (2) police 56.2%
         (3) a public health center 31.0%
         (4) a local government 21.4%
   6. Provision of necessary information
      a) Ratios of citizens who expect it from
         (1) police 70.6%
         (2) a broadcasting company 69.2%
         (3) neighborhood organizations 19.6%
   7. Ratios of citizens who expect traffic controls from
      a) police 97.2%
      b) neighborhood organizations 32.6%
   8. Expectation of maintenance of social order
      a) Ratios of citizens who expect it from
         (1) police 95.0%
         (2) fire departments 39.0%
         (3) a local government 16.8%

I. Material:

Title: Kumamoto Taiyo Depaato Kasai ni Kausuru Keibi Shinrigakuteki Chosa Kenkyu. (On the Fire at the Kumamoto Taiyo Department Store)

Author: Keibi Shinrigaku Kenkyu Kai (Guard Police Psychology Research Society)

Publisher and Year: Keishi-cho (Tokyo Metropolitan Police Board), 1973

II. Study:

(1) Agent and/or Event

Type of Disaster: Fire

Date of Occurrence: November 29, 1973, about 1:15 p.m.

Location: Kumamato Prefecture

Casualties and Damages:

Killed: 103
Injured: 109
Area burned: 13,587m^2 (16,250 square yards)

(2) Method

Method in detail: See the attached

Date of Study:

III. Hypothesis and Findings.

I. Method

A. Group interviews with six groups

1. Slightly injured customers — 7 persons
   December 8, 1973
2. Safely escaped customers — 6 persons
   December 8, 1973
3. Employees of Taiyo Department Store — 11 persons
   December 9, 1973
4. Residents around Taiyo Department Store — 8 persons
   December 9, 1973
5. Policemen who worked on the spot — 8 persons
   December 9, 1973
6. Officials of related organizations — 9 persons
   December 10, 1973

II. Findings

A. Since people use elevators or escalators in normal situations, they are less aware of stairways which caused awareness difficulties in escaping.

B. Being poisoned by smoke was a major cause of casualties. People should recognize that smoke is most dangerous in high-rise building fires, and internalize the knowledge that they have to escape upon seeing smoke.

C. To avoid casualties due to smoke, the authorities should force companies to install an emergency smoke duct system in every high-rise building and underground shopping mall.

D. Responses of organizations to the fire showed weaknesses in cooperating with other organizations. Japanese organizations are usually structured along vertical lines so that inter-organizational cooperation requiring horizontal ties becomes difficult. A certain cooperative system among related organizations should be established, clarifying the roles of each organization.

E. Especially, a cooperative system between police and fire departments should be established as soon as possible.

III. Comments by Psychologists

A. Comment by Professor Abe

1. The worst thing in this fire was that the building did not have an exterior emergency stairway.
2. Anti-fire shutters, emergency exits, and the like have proved capable of protecting people.
3. On the higher floors, a short time was available between recognizing the fire and being driven into strained circumstances. In other words, the higher the floor, the higher the degree of urgency.
4. Quick and instinctive responses saved persons in this fire. But this is not always true, especially in a crowded place.
5. A notification system across different floors in a building should be established. This will decrease the degree of urgency on the higher floors.

B. Comment by Professor Ohta

1. In this case, quick and instinctive responses seem to have been better. However, in the case of the Osaka Sennichi

Department Store Fire, composed responses were better. It is too early to definitely say which is better, being instinctive or being composed.

2. There were many part-time workers in the department store because it was the busiest season of the year. This was one reason for no organizationally coordinated responses.
3. Since the building was partially undergoing reconstruction unusual circumstances were accepted as normal. This may have been one reason for the delayed recognition of a fire.
4. Establishing an inter-organizational coordination system is a matter of great urgency.
5. The convergence of T.V. or radio reporters, journalists, and researchers has both merits and demerits. In order to avoid problems, it may be necessary for involved organizations to set up a special section for the release of information wanted and necessary by different interested parties.

I. Material:

Title: Daishinsai Taisaku no Tameno Shinrigakuteki Chosa Kenkyu, Vol. 9, Kohtsu ni kansuru Chosa (Reports on the Psychological Research for Countermeasures against Earthquake Disasters, Vol. 9, Research on Traffic Condition)

Author: Guard Police Psychology Research Society

Publisher and Year: Guard Police Psychology Society and Metropolitan Police Department, 1974

II. Study:

(1) Agent and/or Event

Type of Disaster: Hypothetical Earthquake

Date of Occurrence:

Location: Tokyo

Casualties and Damage:

(2) Method

Method in detail:

1) Questionnaire (Drivers who came to the Driver's License Bureau for renewing their licenses.)
2) Sample: 4,000 drivers (men: 3,392,women: 602, unknown: 6)
3) Questionnaire and interviews (Managers)
4) Sample: 173 managers who attended the lecture on the managing of safety driving held by police.

Date of Study: (1) June 5 and 6, 1974 (2) June 11, 1974

III. Hypothesis and Findings.

I. Drivers

A. Percentage of drivers equipped with fire extinguishers 32.0%
   1. Likelihood of a driver being equipped with fire extinguishers increases with the age of the driver.

B. Percentage of professional dirvers equipped with fire extinguishers 40.0%
   1. Professional drivers are more likely to be equipped with fire extinguishers.

C. In an imminent situation,
   1. Percentage of drivers who will wait in or around their cars, parking on the edge of a road (the recommended response) 36.2%
   2. Percentage of drivers who will run away, leaving their cars on the edge of a road 36.0%
   3. Percentage of drivers who will keep driving 3.0%
   4. Percentage of drivers who will immitate what other drivers do 2.4%

D. In a more severe situation, such as evacuation
   1. Percentage of drivers who leave their cars unlocked (the recommended response) 56.6%
   2. Percentage of drivers who leave their cars locked 10.7%
   3. Percentage of drivers who answered that it depends upon the situation 31.3%

E. Percentage of people who are familiar with the emergency traffic control system 26.0%
   1. Percentage of professional drivers who are familiar with the emergency traffic control system 29.4%
   2. Percentage of average drivers who are familiar with the emergency traffic control system 27.7%
   3. Percentage of drivers with driver's license but who do not drive in everyday life situations and who are familiar with the emergency traffic control system 16.4%

F. Percentage of drivers who think that the emergency traffic regulations will be observed 10.1%
   1. Percentage of drivers who tend to think that the regulations will be violated 61.9%
   2. Young drivers are more likely to think that the regulations are violated and the traffic conditions will be out of order.

G. Percentage of drivers who in an emergency period will follow suggestions by police on the road 44.0%
   1. Percentage of drivers who in an emergency period will follow radio broadcast suggestions 45.6%
   2. Men are more likely to rely on radio and women are more likely to follow suggestions given by police.
   3. Likelihood of a driver to follow suggestions given by police increases with the age of the driver.

II. Managers of shipping, bus, and taxi companies

A. Percentage of managers who answered that every car in his or her company was equipped with fire extinguishers 50.9%

B. Percentage of managers who answered that they made company drivers familiar with police department emergency traffic control systems 12.1%

1. Percentage of managers who answered that since they did not know how the police would control traffic in an emergency period, they did not try to make the drivers familiar with a possible system 26.6%

C. Percentage of companies that have a certain kind of training or guidance for appropriate responses to an emergency 32.9%

1. The larger the company, the more training or guidance.

D. Percentage of managers who know the emergency shift of the traffic system when several main routes in and around Tokyo are shut off for evacuation and emergency activities 22.0%

I. Material:

Title: Daishinsai Taisaku no tameno Shinrigakuteki Chosa Kenkyu--Jidosha Untensha no Ishiki Chosa, Dai 10-Ho. (Report on the Psychological Research for Countermeasures Against Earthquake Disaster--The Drivers from Outside of Tokyo, Vol. 10)

Author: Keibi Shinrigaku Kenkyukai (Guard Police Psychology Research Society)

Publisher and Year: Keishi-Cho (Tokyo Metropolitan Police Board), 1976

II. Study:

(1) Agent and/or Event

Type of Disaster: Hypothetical earthquake

Date of Occurrence:

Location: Tokyo

Casualties and Damage:

(2) Method

Method in detail: Survey Research: Questionnaires were delivered and collec by police

Sample: (1) persons who drive their own cars for going tc from their offices and for doing their busine in the daytime

(2) persons who drive their own cars only for goi to and from their offices

(3) persons who drive company cars only for doin business in the daytime

Total number of Valid Answers: 1,014

Return Ratio: 93%

Date of Study: Oct. 22-Nov. 5, 1976

III. Hypothesis and Findings.

I. Expected Emergent Responses by Drivers--Four Types
   A. Observation Type
      1. Would stop driving and observe and attempt to comprehend the situation
   B. Follower Type
      1. Would follow or immitate others
   C. Leave-Behind Type
      1. Would stop driving, exit and leave a car on the road
   D. Run-Away Type
      1. Would keep driving as long as possible

	(on less crowded road)	(on crowded road)	(on highway)
1. Observation Type	83.4 (%)	72.2(%)	68.3(%)
2. Follower Type	10.7	22.7	18.3
3. Leave-Behind Type	13.0	18.4	14.0
4. Run-Away Type	16.8	-	15.7

   E. The Follower Type is dominant among women, and the Run-Away Type is dominant among men.
   F. Drivers of compact cars are more likely to be the Leave-Behind Type, while drivers of trucks are more likely to be the Follower Type.
   G. The more driving experience drivers have, the more likely they are to be either the Observation Type or the Leave-Behind Type.

II. Desirable Responses as Indicated by Drivers (multiple choice)

A. To park the car on the left edge of a road	77.1%
B. To stop the engine	64.7%
C. To listen to a radio	68.1%
D. To park the car at the center of a road	2.6%
E. To leave the car with the engine on	4.5%
F. To exit the car	15.3%

III. Expected Behavior after the Quake as Estimated by Drivers

A. Would conform to the directions of the police	85.6%
B. Would exit and leave the car with the key in it	32.3%
C. Would immitate others	28.2%
D. Would evacuate by driving the car	7.7%
E. Would evacuate depending on the situation	6.7%
F. Would exit and leave a locked car	3.8%

IV. Percentage of the Drivers Who Know More or Less about the Emergency Traffic Control System 27.6%
   A. Male drivers who know it 27.8%
   B. Female drivers who know it 20.7%
   C. Drivers in their mid-forties or mid-fifties know best about the system.
   D. The older the drivers are, the more accurate information they know regarding the system.
   E. The degrees of recognition and of accuracy about the emergency traffic control system are lower among drivers of trucks

than among drivers of passenger cars, and lower among drivers who use highways than among drivers who use ordinary roads.

V. Contacts with Information about Appropriate Responses
   A. Drivers who have some contacts with such information
      1. Male 82.0%
      2. Female 75.9%
   B. The older the drivers are, the more they are in touch with such information.
   C. The sources of information
      1. Television 59.8%
      2. Radio 42.6%
      3. Newspaper 47.6%
      4. Public relations by governments 47.1%
      5. Weekly magazines 20.9%
   D. Drivers who are familiar with such information are more likely to be the Observation Type.