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DECISIONS, DISASTERS, AND
PUBLIC POLICY

A research proposal submitted
to the Twentieth Century Fund
by
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PART I.

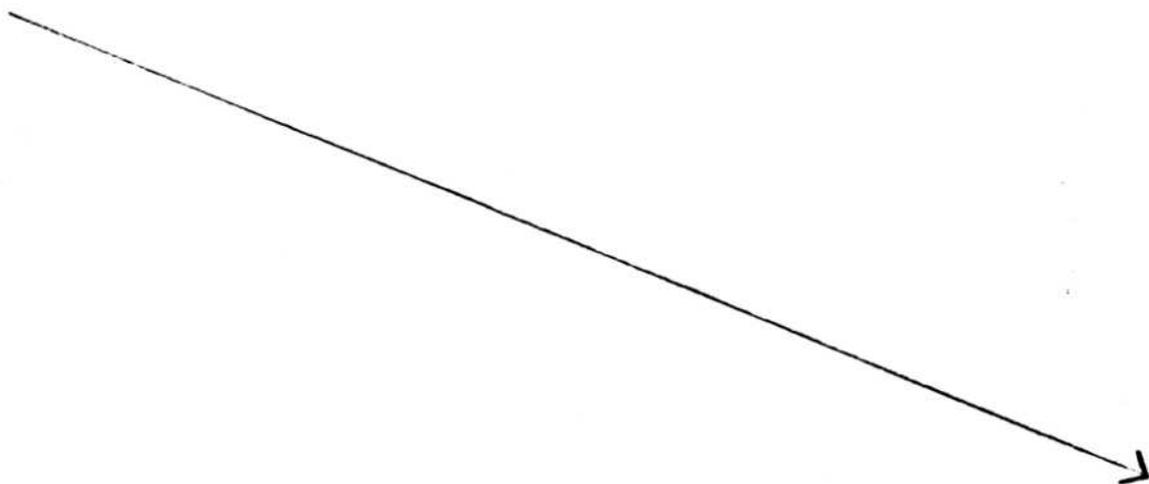
Purpose and Uses of Study

The purpose of this research, and of the book that would eventuate from it, is in effect to show how the problems of natural disasters might appear to political scientists. Essentially, this entails an appreciation of the scope and intensity of disasters, the varied human situations exposed in the several major types of disaster, and an explanation of how disaster-situations can be handled according to the principles of political science. It would integrate and conceptualize the features of the total spectrum of disasters so that policy-makers might efficiently, that is, without duplication of effort, agencies, and costs, formulate an organization and rules for the monitoring of potentially disastrous settings. It would point out ways to the continuous enhancement of the scientific and rational elements in the monitoring and then in the decision-making process as a potential disaster actualizes. It would indicate how to achieve the most difficult aim (and from the needs of a democratic society, an essential goal) of healing the wounds of a disaster while restoring political and governmental normalcy.²

The types of disaster to be dealt with include, but tentatively, floods, earthquakes, meteorological turbulence, forest fire, plagues, famine, and mass poisonings.³ Each of each contains, of course, subcategories that may differ significantly from one another, like river floods and tsunamis.

Not only are there many subcategories, but there are also wars, man-made disasters like cave-ins of coal mines, strictly limited disasters such as shipwrecks, a number of "minor" types (such as mud flows, rock avalanches, insect plagues, starfish and red plagues in the sea),⁴ and "provocations of nature." This latter term I have coined for a growing range of purging or preventive disasters, for example, mass vaccination, cloud-seeding, setting therapeutic forest fires, blasting earthquake faults, closing cities to growth, transferring population (as the U.S. government did with the Japanese-Americans in early World War II⁵ and the Russians with several groups of the USSR in war and crisis, and the French evacuated Alsace in World War II, etc.), and counter-infestation against mosquitoes (can DDT be a plague?).

I cannot say presently how many of these cases will be employed in the course of the study, but I would not like to rule them out, no more than other types of disasters to be mentioned below.



The research will consider how each disaster-situation functions in its several phases; preparedness; warning (long-term or brief); the event and its impact; ad hoc response; larger, gathered response; post-disaster restructure; and rehabilitation. Traditionally, what actions have been taken in these various phases and with what effects? Has political and administrative progress been made in the twentieth century? What scientific advances have found their way into disaster control? Is disaster control presently less effective than the state of knowledge would permit it to be?

After answering these questions for individual types of disaster, the research can take up the question whether there are general problems and principles embracing most disaster situations in a political science of disasters. Does the evidence permit us to say, for instance, that in all cases of disasters surveyed, the degree of preparedness (using up-to-date criteria of science and rational management) was highly associated with the restriction of losses, even considering the costs of preparedness? Doubts have often been expressed at the net beneficial effect of uncoordinated preparedness (e.g. three hospitals descending at once upon Guatemala which needed one) or its inadaptability (as when pup tents were dispatched to Turkey for family use).[¶] Again, first phase by phase, but finally in general, how are ordinary political and institutional processes affected by disasters and how long do the changes in them endure afterwards? When, in Guadeloupe in 1976, the volcano La Soufriere threatened a violent eruption, the prefect, under the highly centralized French system, could order half the population to be evacuated;⁶ the volcano failed to explode,

but the prefect continued his functions nonetheless. There was a political furor but little question of legal authority; in America, powers in any locality are limited and decentralized.

In the end, it is believed that a book can be written that will help the following groups:

1. Interested citizens who wish to understand the possible extent and limits of disaster control because they are or will be leaders of public opinion.
2. Political scientists and students who may need to know how disaster politics coincides with and differs from ordinary political science.
3. Officials on all levels of national and international organization and in non-governmental associations who are entering the disaster field or faced with decisions concerning it.
4. Scientists who must know to what extent they will need to work with political-civic leaders, and to what degree they can and must legitimately enter the process of disaster control, and how to do so.

PART II.

Why Study Disasters?

The eminent sociologist, Max Weber, defined the field of economics pragmatically as what was intrinsically economic plus what

was relevant to and affected by the economic factor. I once defined political science similarly as what was central to political power plus what was politically relevant and politically affected.

Natural disasters can be defined as sudden extensive interventions of high energy forces of nature in human lives, excepting those deliberately provoked by men. Disasters are invariably political; the government intervenes, and people believe it should, both to assist the victims and to defend itself against the effects of disaster. When Joseph stored grain against the great famine of ancient Egypt, he was honored for his foresight and executive ability, both by those who lived off the stores and the government that was enabled to maintain its authority in those trying times. By contrast, very recently, the inability of the West Pakistan government to succor the Bangladesh victims of devastating floods and famine contributed to the revolution against its rule.

The stability of the United States Government in the face of disaster is undoubted, if only because the country is too rich, large, diversified and well equipped to be prostrated by a natural disaster. Each year natural disasters in the United States cause a number of deaths and injuries, destroy property worth billions of dollars, spread terror among many thousands of people, and cause losses in production and widespread hardship. These considerable losses are absorbed and the country moves on. In comparison with traffic accidents, cancer, and alcoholism, disasters cost less, in the average year. And, since the the government's stability is not at issue in disasters, perhaps these are more important problems, too, in the

processes of government; the role of wealth in politics; the development of new energy sources; the education of the young; etc.

Yet even in the face of these other challenging problems, an attention to natural disasters can be justified. First, unfortunately, disasters do not average out smoothly; California earthquakes are expected that may cost as much as the total cost of all disasters since the San Francisco Earthquake of 1902 in lives, property, energy and material consumption. Second, even with the "luck" of the past decade in the United States, the prevention or reduction of losses is to be welcomed. It is not inconceivable that the equivalent of the budgets of several states of the Union, plus the budget of the National Arts Endowment and Humanities Endowment, can be saved if a political science of disasters is developed and applied.

Third the costs of disaster are rising with growth in population and investment in destructible goods. Fourth, new hazards are being introduced with new technologies such as nuclear power, the manufacture of poisonous chemicals, and the transportation of ever larger quantities of petroleum. A shipwreck was once a tragedy to its crew and passengers; now it can be a tragedy to a whole region, as was the break-up of the giant oil tanker Amoco Cadiz off the coast of Brittany last year.

PART III.

Additional Distinctions

A distinction can be made between disasters that are mainly

man-made or mainly natural, and a question arises as to whether the distinction might be usefully employed in limiting the scope of this book. Briefly - because many arguments can be discussed - the distinction is not basic to this study. The peculiar qualities of a disaster so far as public policy is concerned are its suddenness and the intensity of changed conditions that it imposes upon its victims.

A radioactive cloud from a nuclear power plant may occur because of an earth shock or a failure of construction or a human accident. In all events sudden and disastrous mass poisoning by radioactivity may occur. So it may be granted that a similar disastrous event can occur out of several causes. Three different sciences, at the least, are involved in the prevention: seismology, construction engineering, and behavioral science.

Practically every kind of disaster has qualities that overlap with other disasters (again, to illustrate, forest fires are set by many means - deliberately, by accident, by lightning, by earthquake, by volcanism and so on.) The suddenness and the sharp damaging contortion of the environment are the critical traits. The word "catastrophe" may be more exact than disaster. Supposedly its etymology comes from the turning point, the downward (kata) turning (strophe) in a Greek tragedy. And the newly devised mathematics of topology known as "catastrophism" is precisely concerned with depicting this abrupt avalanching phenomenon in various spheres of life and nature.

Yet it would be best, I think, to avoid excessive concentration upon Defense Preparedness Policy, although one may profit from the large quantity of discussion over the years in this area. Defense

Preparedness shares the qualities of other forms of disaster preparedness: the science of predictions; the cost-benefit factors; the structure of prior, early, and post-decisions; the disasters and their aftermaths; reconstruction. It helps to think of the similarities to realize that a Civil Defense Director receives only the message that an attack is on. What happens has little to do with the "enemy." It might ~~as~~^{well} be a warning of an imminent great earthquake. The advance discussions and preparations differ greatly, but perhaps no more than between discussions of earthquakes and of hurricanes.^π A true all-out nuclear exchange, of course, implies a universal disaster the consequences of which would absolutely fly off any chart for the disasters that we are discussing in this study (I would not discuss in this study, except in passing, the only "competitor" of the nuclear bomb exchange, which would be a large comet or large meteoroid shower, which were, incidentally, serious preoccupations of mankind in earlier times.) Should we stop short of including war in this study -- war viewed solely in its disastrous aspects? Typical close-related aspects are the mass bombing of a city, the flight of civilian crowds from an area threatened by the enemy, and the handling of large numbers of refugees in camps.

Another distinction, at first sight absurd, presents itself. Should we study only disasters that happen, or should we study also disasters that fail to occur? This question turns out to be quite realistic. In the first place, a nation or community expecting sooner or later^a disaster may rule itself differently and behave differently. If nations took nuclear danger at face value they should be permanent garrison states. They toy with the idea, alternating fright and

amnesia. Still there may be a poorly measured psychic difference between pre-nuclear and post-nuclear politics, both national and international. Tornado-prone communities have active Red Cross chapters and storm cellars. Do they have stronger local governments or are they less self-reliant and inclined to strong central government, or both? Alertness to disaster potentials is not part of the good life; it is a strain on human minds and sensibilities. Although this kind of erosive psychic damage is difficult to measure, it may be a contributing factor in rising rates of dissatisfaction discoverable in public opinion polls. It marches along arm-in-arm with the psychic disturbances (anomie, alienation) of the machine age, usually indistinguishable from this feature of modern existence. A predicted disaster takes its toll, even if it fails to occur. The political side of this is that an ideal leadership would be one that frightens the population as little as possible while taking the necessary steps for prevention of and preparedness for disasters. But since fear is a great and cheap prompter of preparedness, it is the usual resort of politicians and pressure-groups. This is so, though the expectation of disaster has a tendency to produce disaster or at least aggravate it (the self-fulfilling prophecy). Scientists of many types, who may be engaged in the prediction, prevention, and handling of disasters, find themselves reluctantly participating in the total picture of politics and public moods. For instance, a newspaper headline, "Tremor in Mexico was Foreseen by Scientists over a Year Ago," begins: "With uncanny precision, a team of scientists at the University of Texas accurately forecast..."

the place and magnitude of Wednesday's destructive earthquake off the Mexican coast," and that it "could occur at any time." (Washington Post, Dec. 1, 1978, A34). The prediction, published in a technical journal, was ultimately picked up by the press, and "because of the public anxiety it created, incurred some official Mexican displeasure" for the authors. As a result, the articles concludes, although they are exploring elsewhere similar possibilities, the principal author "refused to give even the approximate location of those potentially earthquake-prone areas at this time." Thus scientists are implicated. They are under cross-pressures, and they may not know now, but will appreciate soon enough, when they try to inform only the "proper authorities," what "information leaks" are all about, and they will incur criticism for not having given warning as soon as they had knowledge.

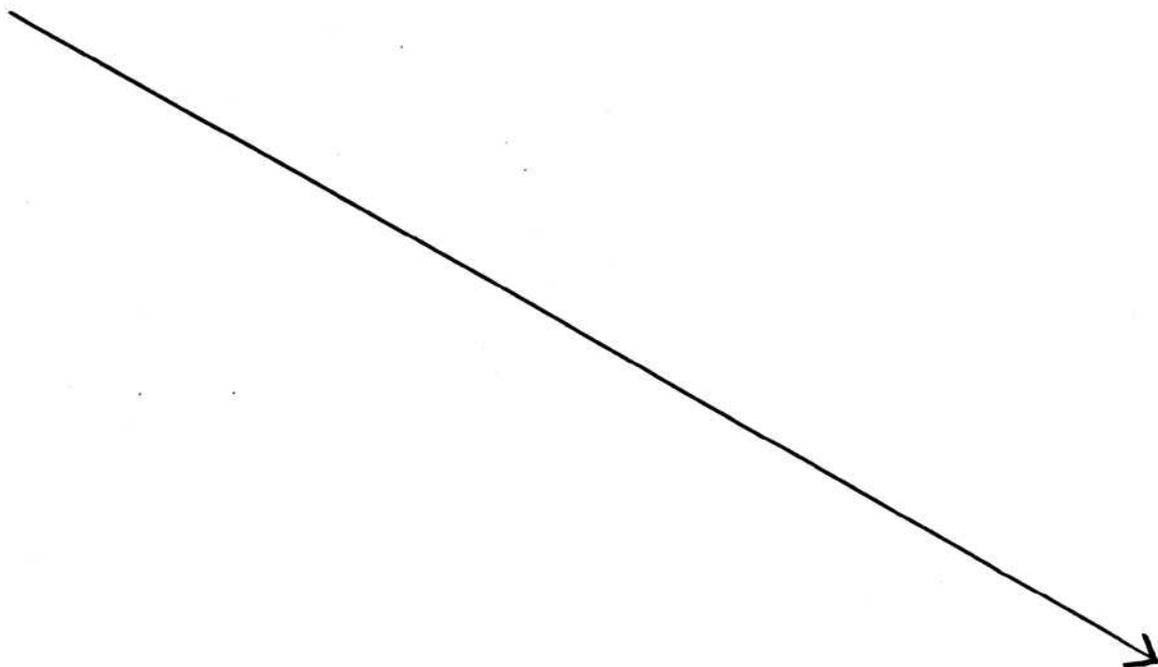
Secondly, the more complete and rational a policy against disaster, the more costly and controversial the steps that must be taken against the occurrence of and prediction of disaster.⁷ The La Soufriere (Guadeloupe) case is salient: here damage was suffered and political passions excited by an evacuation ordered by the French government under scientific (but divided) guidance. The volcano failed to⁸ explode. A similar minor case happened in the State of Washington; the tourist industry was somewhat damaged and much annoyed. Every hurricane warning that is posted costs something, possibly millions of dollars (in conventional GNP reckoning) of lost time, preventive measures, fishing boats tied up, and hotel room cancellations. When the day comes, as it surely will, that a group of scientists declare an earthquake to be imminent in the San Francisco region, the immediate response (to be

considered as investment or prevention or insurance against the event) will, quite apart from whether the earthquake occurs, cost from some millions to many billions of dollars and the cost will escalate in proportion to the faith in the predictions.⁹

A plague strikes suddenly and intensively. Whole civilizations have changed owing to severe plague. The United States had a swine flu crisis lasting for a year, 1976-77, unprecedented scientifically and politically. The plague never struck. Funds (\$ 135 millions) equal to the total budget of the National Endowment for the Humanities were appropriated by Congress and new laws of liability were passed. Many millions of people lost time and there was a plague of bad tempers. Perhaps popular confidence in governmental and science, already waning (in many polls), diminished a little more; but shouldn't people have respected more a government that was "on its toes" and loved them so much as to want to give them all a shot in the arm?

Then, in summary, the study takes as its scope that portion of the area of political behavior that deals with, is relevant to, and affected by sudden disastrous turns of events in which great natural forces and bio-chemical outbursts are prominently involved. If the term were not so awkward, the field might be called "Disastrological Politics."

The field is not defined, systematized and given rules and prescriptions, in theory or practice. The literature is large but not coherent. Scholars and disaster officials answer the query: "What is the bible on the subject?" with: "There is none." The settings of decision in disaster are so varied, impromptu, unavailable to scholars that close-range decision studies are rare. I hope that a certain number of interviews of participants will help to fill this gap in written materials. Both written materials and conversations tend to circumvent the central concern with policy and decision-making, concentrating upon non-political matters, such as works in seismology or engineering, and descriptions of physical damage and rescue efforts. Some of the books tend to read like manuals, that is, avoiding the clash and resolution of the real political and social forces.



PART IV.

Additional Specific Questions

In addition to the questions raised in the preceding pages, the following matters are suggested as justifying attention in the research:

1. Can a single "constitution" or omnibus bill for disaster control in the United States be written and adopted?
2. Is the American leadership -- politicians, business leaders, military men, officials, press -- psychologically well-selected when it comes to handling disasters?
3. By whom is and should the costs of disasters be borne -- by the victims, by insurance, by various levels of governments?
4. Should the international disaster aid agency be separately organized, as at present, or ought it to be part of a unified disaster preparedness and assistance agency?
5. What differences occur between domestic and international disaster aid? What do these suggest and signify about the politics of disasters?

6. In general, is the role of specialized scientists and panels dominated by scientists likely to grow in the decision-making processes of the various phases of disaster?

PART V.

A Confused Hierarchy

The Baltimore Sun of January 29, 1929, carried an article describing the failure to appoint a Director for a new multi-faceted federal agency to deal with civil defense, natural disasters, and other agencies. Congress had cleared promptly the President's reorganization plan. "After months of searching the White House still cannot find anyone considered qualified... Officials... said the White House was having trouble filling the job for numerous reasons, including the expected problems in bringing together all the disaster and civil defense programs in one agency, the new obstacles to federal initiatives from the budget hold down and the high cost of living in Washington.." It is a strange world, the world of disaster control, where from the top of the agency down to the humblest potential victim of disaster, it is so difficult to work at pretending that what must come will come.

The job of disaster control is just about as risky and unstructured as any public figure might hold and it is indeed hard to say who is especially qualified for it. In between disasters, the position appears insignificant and its perquisites and resources are prey to ordinary powerful political groups. Few would be pleased with the prospect, if a disaster occurs, of being responsible for the inevitable unpreparedness, never mind the disaster. If someone would take on the responsibility, he would scarcely know what to do beyond

ladling out soup and distributing blankets and medical supplies: if he knew what should be done, he wouldn't get the officials of all stripes to cooperate with him. If they would obey, he would lack the means that they would require to handle the disaster. If he did have the means, he wouldn't be able in the confusion to keep track of their disposal. If he controlled them strictly he would be attacked for misconduct and arbitrariness. If he were so attacked, there would perhaps be a legislative investigation; he might well be forced to resign. So why take a job that one might have to resign as soon as the occasion arose to perform it?

No less lugubrious a scenario might also be written for who essays a study of disastrological politics. The details may be fascinating but the principles that emerge may be beclouded by exceptions. The study is risky. Aside from its human interest appeal, its contribution may be largely limited to letting the intelligent person concerned with public policy appreciate the variety and dimensions of disastrology. He might learn what to expect organizationally when disasters befall, and what may occur when rather muddled humans try to outfox natural forces.

PART V.

Political Science and Disasters

(A Working Outline of a Book)

Introduction: The Rational Control of the Effects of Disaster.

Part I. The Background: Problems and Types of Response.

- I. Types, intensity, and effects of disasters, including costs. Are they likely to increase? What would be the maximum pay-off of full rational control systems?
- II: Historical precedents and their survival; ways in which Societies historically have dealt with disasters; dictatorship; religious rituals (prayers, sacrifices, ceremonies, attitudes management, astrology, etc.);¹¹ laissez-faire; disaster planning and rational controls.¹²
- III. The Six Common Phases of Disaster Control (see below): These can be identified in all disasters: floods, earthquakes, wind turbulence, forest fire, plagues, famine, and mass poisoning.

Part II. Phases in Disaster Control Operations

- IV. Long-range Preparedness: Settlement and construction controls; education and training; storage of resources and coping tools; rehearsal and disaster experience elsewhere.
- V. Prediction and Early Warning: Who makes the decision that disaster impends. Warning requires identification of signals (which vary considerably from one type of disaster to another), and the effective communication of the signals.¹³ Warning systems appropriate to highly developed and poor areas.

- VI. Pre-disaster Mobilization: Call-up of civil and military units; limitations of ordinary activities; distribution of means of rescue and assistance; promulgation of rules; evacuations.
- VII. Mobilization of Disaster-Area Resources: Manpower and property requisitions; restoration and maintenance of order; communications; despatching of teams; medical facilities; burial; deliberate destruction to facilitate operations.
- VIII. Outside Help: Communications with and coordination of arriving assistance; overall command of resources; private-public liaison.
- IX. Rehabilitation and Long-Range Effects: Restoration to status quo ante vs. redesign and reconstruction; disengagement from outside help; repealing emergency laws and rules.
- X. General Conclusions on Phases and Their Integration, paying attention especially to the general and common features of disasters and to distinguishing the presently unsolvable as against the remediable problems of disaster situations.

Part III. Paramount Problems

- XI. The Constitutional and Legal Foundations of Disaster Control: Basic ethical considerations; sources of emergency powers; the present location of legal authority in various kinds of disasters; martial law. The juridical concept of "disaster area."

XII. Collective Behavior in Disaster Crisis and Psychological Controls:¹⁴

The range of collective response to the threat, the experience, and the aftermath of disasters. What communications need be maintained and their contents; the control of rumor.

XIII. Integration of Personnel: The need to discover, call upon, and organize diverse skills, different organizations of governmental and non-governmental kind, coming from various areas in and around the disaster setting and from afar or abroad.

XIV. Costs: Who ordinarily pays the costs of disaster? The legal status of disaster losses. Shifting the burden from the victims to society and governments, by insurance and other methods.¹⁵ Human costs in terror, mental disturbances, disrupted lives.

XV. Leadership in Crisis: Decision-making; shifts of power and responsibility; quarreling and factionalism among leaders; turnover of powers; determination of phases; effects of charismatic compared with bureaucratic leadership.

XVI. Innovation in Materials and Techniques:¹⁶ Meteorological improvements; satellite monitoring; epidemiological advances; organizational necessities (can an all-Purpose disaster-fighting organization be designed that would be assembled in different modes upon the occasions of disasters of different type, scope, and intensity?)

XVII. Conclusion: A Model System of Disaster Control. Here an attempt would be made to design an organization that would monitor and train continuously, and then would be activated from the normal social-political structure in response to disaster; it would follow prescribed procedures and possess stipulated powers during the six phases of disaster control.

PART VI.

Focus: National or International

One of the first questions encountered in pondering the scope of the projected research was whether it should be confined to the United States or not. We assume that American public policy is the center of interest. Yet this fact does not in itself answer the question, for two reasons. First, American foreign disaster aid operations are extensive and will probably continue to be so indefinitely. Involved in such operations are American foreign policy, international economic policy, and information and "propaganda" policies. American disaster assistance in places such as India, Bangladesh, Iran, Ethiopia, Nicaragua cannot help but be intertwined with foreign policy considerations. One may wonder, were there to be now one of China's great earthquakes or droughts, whether Vice Premier Deng Hsiao Ping during his recent visit would have asked for prompt disaster aid rather than for a visit of the Boston Symphony Orchestra. In all of this, too, there is involved not only a question of foreign aid policy, but of the execution of that policy; attention needs to

be given to the character, organization and adequacy of the aid, once the decision to help has been made.

Second, the variety and depth of experience with disasters in the rest of the world can hardly be excluded from a discussion of American experience. How the French, Chinese, and other governmental systems put together, empower, and administer disaster aid cannot be ignored in appraising the American behavior. One cannot move into such a vast field of comparative study without hesitation; it seems difficult enough, if not impossible, to discuss systematically the disaster behavior, laws, and consequences in the one union, several regions, fifty states, and thousands of local governments and local economies of the U.S.A.; still, it is felt that if one goes this far, one might as well go all the way. The method cannot embrace a full array of data and situations, no matter what one does. The number of heavy disasters in the world approaches an average of one hundred per year.

Therefore, an attempt will be made to state a principle applicable to American policy and to follow it up, where possible, to an extension of principle to some or all nations. This format would be attempted both by chapter and for the book as a whole.

Footnotes

- 1) Paul Slovic, H. Kunreuther, and G.F. White, "Decision Processes, rationality, and adjustment to natural hazards," in Gilbert F. White, ed., Natural Hazards (New York, Oxford, 1974).
- 2) Haas, J. Eugene, ed.; Robert W. Kates, Martyn J. Bowden, Daniel Amaral Reconstruction Following Disaster MIT Press (Cambridge, Mass. 1977).
- 3) Hoehling, Adolph A., Disaster: Major American Catastrophes Hawthorn (New York, 1973); contains a popular account of numerous cases.
- 4) The Smithsonian Institution Center for Short-Lived Phenomena (Cambridge, Mass.) has published many brief reports of this type.
- 5) Alexander Leighton, The Governing of Men.
- 6) Le Monde, August 15-16, 1976.
- 7) William W. Lowrance, Of Acceptable Risk: Science and the Determination of Safety, Kaufmann (Los Altos, Calif., 1978).
- 8) Tazieff, Haroun, La Soufrière et Autres Volcans (Paris, Flammarion, 1978).

- 9) National Academy of Sciences, Earthquake Prediction and Public Policy (Washington, D.C., 1975).
- 10) Richard E. Neustadt and Harvey V. Fineberg, The Swine Flu Affair: Decision-Making on a Slippery Disease (Washington, U.S. Dept. HEW, 1978).
W.I.B. Beveridge, Influenza: The Last Great Plague (Heinemann, London, 1977).
- 12) Sorokin, Pitirim, Man and Society in Calamity, the Effects of War, Revolution, Famine, Pestilence upon Human Mind, Behavior, Social Organization and Cultural Life, (E.P. Dutton and Co. New York, 1942).
- 11) The political factor is often edging into the religious. The overlap is especially large in contemporary disasters, inherited from prehistoric times. The Virgin Islands (U.S.), for instance, have two holidays, Supplication Day, before the hurricane season, and Thanksgiving Day, in October afterwards. The religious aftermath of the Great Alaskan Earthquake of 1964 was considerable. Disaster control problems in the Sahelian drought area of Africa can only be understood if religious ideas are taken into account. Cf. Anne V. White, Global Summary of Human Response to Natural Hazards: Tropical Cyclones, in ^{G.F.} White, ed., Natural Hazards (New York, Oxford, 1974) ~~op. cit.~~, 263; The Alaskan Earthquake of 1964 (Washington D.C., U.S. Govt. Printing Office); Caldwell, The Sahelian Drought, 59-60.
- Seismic risk is greatest in the California-Nevada region, but an equal class of risk is assigned to six other areas: around Puget Sound, ~~the~~ Upstate New York, the Boston metropolitan area, Coastal

South Carolina, the 4-State central Mississippi Valley area, and a Rocky Mountain belt. (U.S. Office of Emergency Preparedness [1972[, maps.]

- 13) Dennis Mileti, Natural Hazards Warning Systems in the U.S.: A Research Assessment, (Program of Technology, Environment and Man, U. of Colorado, Boulder).

Grosser, George H. ed., The Threat of Impending Disaster; Contributions to the Psychology of Stress (MIT Press, Cambridge, Mass.)

- 14) Charles E. Fritz, Disaster and Community Therapy (National Academy of Sciences, Washington D.C., mimeographed, 1961).
 Mileti, Dennis S.; Thomas Drabek, J. Eugene Haas, Human Systems in Extreme Environments: a Sociological Perspective (Program of Technology, Environment and Man, U. of Colorado, Boulder.)

- 15) Kunreuther, Howard, Recovery from Natural Disasters; Insurance or Federal Aid? (American Enterprise Inst. for Public Policy Research, Washington D.C., 1973).

- 16) The Role of Technology in International Disaster Assistance, Proceedings of the Committee on International Disaster Assistance Workshop, March 1977 (National Academy of Sciences, Washington D.C., 1978).

- 17) Stephen Green, International Disaster Relief (McGraw-Hill, New York, 1977).
- 18) Martha E. Gimenez, "A People's War Against Earthquakes,"
L Mass Emergencies #4 (Oct 1976), 232-41.