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ARPA ORDER NO. 189-1

MEMORANDUM
RM-6247/1-ARPA
MAY 1970

A DELPHI EXAMINATION OF CIVIL DEFENSE:
1. Questions, Issues, and Arguments

Edwin W. Paxson

PREPARED FOR:
ADVANCED RESEARCH PROJECTS AGENCY

The RAND Corporation
SANTA MONICA • CALIFORNIA

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This research is supported by the Advanced Research Projects Agency under Contract No. DAHC15 67 C 0141. Views or conclusions contained in this study should not be interpreted as representing the official opinion or policy of Rand or of ARPA.

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PREFACE

This Memorandum explores U.S. civil defense policy issues by means of a Delphi exercise to find desirable and feasible options and to examine related issues. This is one of the first applications of Delphi to a major policy area.

The research resulted from consultation with the Office of Emergency Preparedness (OEP), Executive Office of the President, which is reviewing the U.S. shelter program to determine ways to minimize American casualties in the event of war. The work was funded by the Advanced Research Projects Agency.

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SUMMARY

This Memorandum exposes opposing arguments about U.S. civil defense in the broad context of strategic issues, international factors, and domestic considerations. The information was gathered by the Delphi method* of eliciting and refining group judgments. The exercise consists of several iterations of questions and responses, with carefully controlled feedback between rounds to reduce the biasing effects of dominant individuals and group pressures. The respondents work anonymously.

The civil defense Delphi consisted of four rounds. On Round 1, the respondents received a questionnaire and lists of courses of action. They answered the questions and rated them according to importance as well as confidence in the validity of the arguments. They rated courses of action in terms of desirability and feasibility, and provided terse reasons for their positions. These answers, ratings, and comments were submitted to all respondents on Round 2. Opinions were freely exchanged and altered on subsequent rounds. At the end of the exercise, each respondent briefly formulated a desirable and feasible U.S. civil defense program. If the study has any conclusions, they are these individual summary programs, contained in Sec. IV of this Memorandum.

The group responses have been tabulated round by round and the final round has been analyzed in Part 2 of this Memorandum, published separately.**

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*For an account of the Delphi method and further references, see N. C. Dalkey, *The Delphi Method: An Experimental Study of Group Opinion*, The Rand Corporation, RM-5888-PR, June 1969.

**Edwin W. Paxson, *A Delphi Examination of Civil Defense: 2. Tabulation and Analysis of Responses*, The Rand Corporation, RM-6247/2-ARPA, March 1970 (For Official Use Only).

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Murray Turoff, a member of the Systems Evaluation Division of OEP, was most helpful in many valuable discussions relative to the initial materials. A review commentary on this exercise (Appendix A) was furnished by Norman C. Dalkey of The Rand Corporation. The responses to the exercise were tabulated by Nancy Challman.

The success of any Delphi exercise depends on the respondents--their careful consideration and rating of the issues, the wealth of ideas they generate. We thank these Rand colleagues:

J. L. Bower
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D. E. Emerson
N. A. Hanunian
F. Hoeber
W. Jones
J. D. Mallett
D. C. McGarvey
T. M. Parker

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CONTENTS

I. INTRODUCTION

In his press conference on 14 March 1969, the President stated that he had directed General Lincoln, head of the Office of Emergency Preparedness (OEP), to review the U.S. shelter program to determine ways to minimize American casualties in the event of war.

In view of the sad history of U.S. civil defense, it seemed desirable to remove civil defense from its past "spasm-war, two-weeks-in-a-hole" setting, and to examine it in a larger context, including:

1. Strategic issues (e.g., damage limitation, coercion, and the Chinese threat);
2. Future strategic systems (e.g., active defense and global surveillance);
3. Arms limitation talks;
4. International problems (e.g., NATO and nuclear proliferation);
5. Domestic programs (e.g., urban renewal, transportation, and consumer interests).

Delphi is a method of pooling the views of experts in a given area, free of the psychological restrictions inherent in face-to-face encounters; e.g., committee meetings involve position-taking, grandstanding, positivism, prestige-seeking, and conformity. A Delphi survey consists of several iterations of questions and responses, with carefully controlled feedback between rounds to reduce the biasing effects of dominant individuals and group pressures. The respondents work anonymously.

The civil defense Delphi consisted of four rounds. On Round 1, the respondents received a questionnaire and lists of courses of action. They answered the questions and rated them according to importance as well as confidence in the validity of the arguments. They rated courses of action in terms of desirability and feasibility, and provided terse reasons for their positions. These answers, ratings, and comments were submitted to all respondents on Round 2. On subsequent rounds, opinions were freely exchanged and altered, if desired, in light of the new information on the group's views and reasoning. At the end of the exercise, each respondent briefly formulated a

sequent rounds, opinions were freely exchanged and altered, if desired, in light of the new information on the group's views and reasoning. At the end of the exercise, each respondent briefly formulated a desirable and feasible civil defense program for the United States.

A respondent* usually worked about one-half day on each of the four rounds. He returned his questionnaire no later than the third day after receiving it, in order to be counted. Control group activities between rounds required about 10 days. Hence, the running time for this survey, exclusive of initial preparation and final analysis by the control group, was about 40 days.

Delphi has rarely been applied to major policy areas. Hence, this study is as much experiment as exercise. The comments of N. C. Dalkey (Appendix A) are most pertinent in this respect.

In the Delphi materials constituting the body of this Memorandum, the numbers in parentheses at the left of each column indicate on which round each argument or comment first appeared. That is, data identified marginally as (2) were the responses to Round 1. The number (1) indicates materials provided to *begin* Round 1.

The reader is invited to compare his own views on these questions, arguments, and courses of action with those of the Rand respondent corps. To this end, group responses have been tabulated round by round and the final round has been analyzed in Part 2 of this Memorandum, published separately.**

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*Respondents are known to the control group only by a code number. Hence, it is feasible for a member of that group to be himself a respondent, as was the author.

**Edwin W. Paxson, *A Delphi Examination of Civil Defense: 2. Tabulation and Analysis of Responses*, The Rand Corporation, RM-6247/2-ARPA, March 1970 (For Official Use Only).

II. RATING SCALES

IMPORTANCE

I1	Very Important	a. This point is highly relevant. b. This issue should have primary priority. c. This concept has direct bearing on major issues. d. This problem must be resolved, dealt with, or treated.
I2	Important	a. This point is relevant to the issue. b. This issue should have secondary priority. c. This idea can significantly affect decisionmaking on major issues, but not until other factors are considered.
I3	Slightly Important	a. This point has only minor relevance. b. This issue should have tertiary priority. c. This idea has little importance. d. This concept is not a determining factor for any major issue.
I4	Unimportant	a. This issue should have no priority. b. This idea has no relevance. c. This factor has no measurable effect. d. This idea should be dropped from consideration.

CONFIDENCE

C1	Certain	a. There is little risk that this idea is wrong. b. Decisions, if wrong, would not be so because of this fact. c. Most inferences drawn from this idea would be true.
C2	Reliable	a. There is some risk that this idea is wrong. b. I am willing to make a decision based on this concept, but recognize some chance of error. c. Some incorrect inferences can be drawn from this idea.
C3	Risky	a. There is substantial risk that this idea is wrong. b. I am not willing to make a decision based on this concept alone. c. Many incorrect inferences can be drawn from this idea.
C4	Unreliable	a. There is great risk that this concept is wrong. b. This concept is useless for decisionmaking.

DESIRABILITY

D1	Very desirable	a. This program would have a positive effect, accompanied by few or no negative effects. b. This program would be extremely beneficial. c. This program is justifiable on its own merit.
D2	Desirable	a. This program would have both positive and negative effects. b. This program would be beneficial. c. This program is justifiable as a by-product or in conjunction with other items.
D3	Undesirable	a. This program would have a negative effect. b. This program would be harmful. c. This program may be justified only as a by-product of a *very* desirable item, but not as a by-product of a *somewhat* desirable item.
D4	Very Undesirable	a. This program would have a major negative effect. b. This program would be extremely harmful. c. This program is not justifiable.

FEASIBILITY

F1	Definitely Feasible	a. There is no hindrance to implementing this program. b. No R&D is required. c. There are no political roadblocks to this program. d. This program would be acceptable to the public.
F2	Possibly Feasible	a. There are some indications that this program is implementable. b. Some R&D is still required. c. Further consideration or preparation should be given to political or public reaction.
F3	Possibly Infeasible	a. There are some indications that this program is unworkable. b. This program involves significant unanswered questions.
F4	Definitely Infeasible	a. All indications are negative. b. This program cannot be implemented.

III. THE DELPHI MATERIALS

100. STRATEGIC QUESTIONS

101. *Assured destruction (should/should not) remain our primary strategic concept for deterrence of attack over the next decade.* C_____ I_____

SHOULD	SHOULD NOT
(2) 101.01 AD would become more credible if we had an effective CD program. C_____	(2) 101.51 AD leaves us open to coercion after a first enemy counterforce strike, since implementing it would mean national suicide. C_____
(2) 101.02 AD has been a successful deterrent in crises since its inception. C_____	(2) 101.52 The SU estimate of its own viability breakpoint may be far higher than ours. C_____
(2) 101.03 Defenses in their own right are unlikely to be strong enough to deter attack. And defense is purchased at the expense of AD. C_____	(2) 101.53 The SU has a major CD program. C_____
(2) 101.04 AD must be accompanied by an emphasis on defense in SALT talks. C_____	(2) 101.54 AD is not necessarily a deterrent against the CPR. C_____

SHOULD

(3) 101.05 AD will continue to deter a large surprise attack of the nation-killing variety. C_____

(3) 101.06 AD has been around too long to abandon as a strategic concept for force procurement. C_____

(3) 101.07 Well-protected or well-concealed AD forces discourage counterforce win attempts. C_____

(3) 101.08 The SU hawks perceive an AD capability as the only high-confidence restraint against aggression. C_____

(3) 101.09 Alternative concepts lead to open-ended arms races. C_____

(3) 101.10 A posture based on AD is not entirely devoid of a counterforce capability. C_____

(4) 101.11 All high-confidence restraints against aggression are military, and AD is unsurpassable among military restraints. C_____

SHOULD NOT

(2) 101.55 Credibility is limited to deterrence of countervalue attacks. We need to deter a wider range of attacks. C_____

(2) 101.56 AD is too simplistic a concept to reflect future behavior and options. C_____

(3) 101.57 If we enter SALT to "codify" mutual AD capabilities, the Soviets will see that we think of using strategic forces only if they launch an all-out attack on the U.S. This would decouple strategic forces from deterrence of other attacks. C_____

(3) 101.58 Launch-on-warning against enemy holdback forces is an important alternative strategy (see 107). C_____

(4) 101.59 If war occurs, under the AD concept the SU has no reason *not* to attack U.S. cities, since it must assume we would go countervalue on it after any attack on the U.S. C_____

(4) 101.60 Whatever it is that AD protects us against is changing over time as our national resolve refocuses and either stiffens or weakens. We need a strategic posture that is rich enough in options to give expression to such shifts. C_____

SHOULD	SHOULD NOT
(4) 101.12 We need to distinguish between defense of our AD force (this merely helps to assure AD) and defense of value targets like population, agriculture, and industry. Defense of the latter can be overwhelmed by offense for near comparable costs. C_____	(4) 101.61 Like a perimeter defense composed of fixed artillery, AD punishes only those who come that way. As the SU and the CPR perceive more accurately what our AD can do, more attacks will be routed elsewhere, and our sentinel will stand unchallenged and all but irrelevant. We must then emphasize the development of new counters. C_____

102. *We (can/cannot) expect to deter a Chinese assured damage threat--a saturation attack on a few important American cities--over the next decade, if they achieve this capability.* C_____ I_____

CAN

(2) 102.01 We can deter it only if we have heavy active and passive continental defenses. C_____

(2) 102.02 The CPR has stated it fears a joint attack by the U.S. and the SU. C_____

(2) 102.03 China relies for growth to world power status on a limited and vulnerable science and technology base. C_____

(3) 102.04 The CPR will only bluster. The Chinese are too intelligent to initiate all-out nuclear war. C_____

(3) 102.05 The CPR would gain nothing by destroying a few U.S. cities. C_____

CANNOT

(2) 102.51 The CPR can go rail or water mobile with its ICBMs, so we would have no counterforce deterrent. C_____

(2) 102.52 Chinese society is not as vulnerable to the leverage of an AD threat by the U.S. as American society is to an AD threat by the CPR (saturation kill of several major U.S. cities). C_____

(3) 102.53 A "truly mad" leader could control the CPR nuclear forces. C_____

(4) 102.54 Such a CPR capability is a deterrent against the U.S. in future crisis management, and so can limit our coercive options. C_____

CAN

(3) 102.06 The CPR nuclear military and technical personnel will best understand the CPR vulnerability to nuclear attack and will speak out against implementing such a threat. C_____

(4) 102.07 (Re 102.53) We are asked to assess an expectation; bizar e possibilities are irrelevant unless some evidence is adduced to indicate these possibilities are likely. C_____

GENERAL COMMENTS

(3) 102.90 This issue is the strongest case for active and passive defenses. How much is "heavy" is in question. C_____

(3) 102.91 It would be desirable to enter into an agreement with the SU in the future to control CPR aggression. D_____ F_____

(4) 102.92 This idea is so complex that the assessment of its desirability awaits examples of possible specific agreements. C_____

(4) 102.93 It may be more desirable to recognize the CPR and try three-way negotiations. D_____ F_____

103. (Reworded) *The SU (does/does not) believe the U.S. would strike first against its strategic forces.* C____ I____

DOES	DOES NOT
(2) 103.01 The SU knows that, unlike its own leadership system, the U.S. hierarchy allows one man to press the button. C____	(2) 103.51 The SU does not believe we would risk national suicide from its residual systems. C____
(2) 103.02 The Soviets assume that, given a plausible excuse (e.g., not backing down in Cuba), we would try to destroy them. C____	(2) 103.52 The SU must know that U.S. public opinion (as well as world opinion) would never support this. C____
(2) 103.03 The SU knows we will have systems fitted for this capability. C____	(3) 103.53 The SU believes that the U.S. calculates it could not carry out an effective damage-limiting first strike. C____
(2) 103.04 The SU knows we have no effective active or passive defense programs and so we may be tempted to preempt. C____	(3) 103.54 The SU holds Western Europe hostage. C____
	(4) 103.541 The fate of Western Europe in a nuclear exchange between the U.S. and the SU is not a matter of primary concern to most Americans. C____

GENERAL COMMENTS

(4) 103.90 What the SU *now* believes about this is important to CD planning only insofar as it is an indicator of future SU beliefs. And present beliefs are an unreliable indicator of future beliefs. C_____

(4) 103.91 In the absence of absolute knowledge, the SU must believe that the U.S. just *might* strike first. C_____

104. (Reworded) *The U.S. (does/does not) believe the SU would strike first against our strategic forces.* C____ I____

DOES

(3) 104.01 The President cannot know, but should and probably does assume, that there could be circumstances in which the SU would use damage-limiting force systems *that it believes to be effective.* C____

(4) 104.02 Many hawks believe almost any actions possible by our diabolical enemies. C____

DOES NOT

(2) 104.51 U.S. leadership believes in the efficacy of AD deterrence. C____

(2) 104.52 The SU has backed down in the past (Cuba). C____

(3) 104.53 No nation would risk its national survival on the assurance by a few military leaders and systems analysts that a damage-limiting force system would work as planned. C____

(3) 104.54 The SU knows that only a part of one of our three AD systems need survive to assure destruction of the SU. C____

GENERAL COMMENTS

(2) 104.90 This depends entirely on the segment of U.S. society considered. C____

105. *The U.S. (could/could not) have in the future a meaningful limited controlled nuclear coercive capability against the SU.* C_____ I_____

COULD	COULD NOT
(2) 105.01 Only if coercive attacks are in crisis theaters, not against Mother Russia. C_____	(2) 105.51 The SU is building strong defenses and can absorb "surgical" attacks. C_____
(3) 105.02 This is technically feasible even against the SU homeland. C_____	(2) 105.52 (Reworded) A U.S. calculation to try this must allow for the chance of disproportionate retaliation. C_____
(3) 105.03 This can be a feasible political option even against the SU homeland. C_____	(2) 105.53 (Reworded) The historical record shows enormous miscalculations in attempted coercions between major powers. Hence such a planning concept is dangerous and unwise. C_____
(3) 105.04 There is no airtight defense against a well-planned and well-executed strike. C_____	(3) 105.54 An attempt, even if successful technically, would lead to escalation. Hence the capability would not be meaningful. C_____
(3) 105.05 Exchanged coercive strikes would be meaningful in the sense that both sides would be more willing to discuss differences after experiencing such demonstrations. C_____	(4) 105.55 Demonstration attacks depending on heavy countermeasures rather than saturation and defense exhaustion may be more likely to trigger a SIOP (cf. 107.01). C_____

COULD

(3) 105.06 Could--if the U.S. can defend against attacks in kind. C_____

(4) 105.07 (Re 105.54, 105.56) In nuclear war, there are strong imperatives against escalation. C_____

COULD NOT

(4) 105.56 (Re 105.05) That's the way most fights start, not stop. C_____

106. *The Soviets (could/could not) have in the future a meaningful limited controlled nuclear coercive capability against the U.S.*
C_____ I_____

COULD

(2) 106.01 The SU could attack our overseas base structure. C_____

(2) 106.02 I haven't much confidence in the fibre of American morale if confronted by an explicit nuclear threat. C_____

(4) 106.03 Circumstances are conveivable in which Americans would want to recognize an obviously selective attack *as such* rather than put national survival on the line. (Suppose the SU had *sunk* the *Pueblo*. Surely there is a nuclear analog.) C_____

COULD NOT

(3) 106.51 The U.S. is building strong defenses and can absorb "surgical" attacks. C_____

(3) 106.52 An SU calculation to try this must allow for a major U.S. counterforce or countervalue attack against the continental Soviet Union. C_____

(3) 106.53 The historical record shows enormous miscalculations in attempted coercions between major powers. Hence such a planning concept is dangerous and unwise. C_____

(3) 106.54 An SU limited attack would not be meaningful, because the U.S. public would clamor for reprisals up to approving a first strike against the SU. C_____

(4) 106.55 A demonstration attack may be negated by the defense--a victory for the defender. Or if the defense fails utterly, the limited attack--designed to deplete the defense and get a few RVs through--becomes a major attack. (This is another argument favoring CD as insurance.) C_____

107. (Reworded) *The capability to launch our forces at risk on tactical warning of a major incoming strike (would/would not) be a desirable policy* option *for the U.S. to have.* C_____ I_____

WOULD

(2) 107.01 In 1966, Marshal Sokolovsky stated that this was an SU option. However, in SU eyes, it would be a likelier option for the U.S., where one man can push the button. C_____

(2) 107.02 (Reworded) The launch-on-warning need not be countervalue. It could be directed in mass against the enemy's holdback forces. C_____

(2) 107.03 This option is a major new deterrence dimension. C_____

(2) 107.04 This option would have a major impact on SALT talks. C_____

(2) 107.05 (Reworded) If we had continental defenses, we could use these resources preferentially, since we would not have to consume resources defending holes that the enemy has targeted and we have emptied. C_____

WOULD NOT

(2) 107.51 (Reworded) This course would foreclose all other options, because we would then be committed. C_____

(3) 107.52 No U.S. President would approve in peacetime or exercise in war such an option. C_____

(3) 107.53 We should have an invulnerable force posture so that weapons need not be launched in haste. C_____

(4) 107.54 Because of possible errors in sensor systems, however redundant, this is too dangerous an option to exercise. C_____

WOULD

(3) 107.06 If we had a dual-purpose ICBM, the President would have a new initial option; i.e., he could order mid-course interception. C_____

108. *Advanced offense or defense weapon system concepts (should/should not) affect civil defense policy. Examples: ICBM systems that are dual-use (mid-course interception), ABM systems, and sea-based ABM systems.* C____ I____

SHOULD

(2) 108.01 A dual system gives us a potentially less catastrophic option for response to a first attack: we can try to absorb it. However, because of possible significant leakage, we need CD for the population to make this option plausible. C____

(3) 108.02 CD and ABM are complementary in protection against the CPR. C____

SHOULD NOT

(4) 108.51 We have a long way to go in CD before this becomes important. C____

(4) 108.52 If "CD policy" implies the existence of shelters, then the survival of those shelters is rather insensitive to change in threat because their useful system life is likely to be longer than that of most other military systems (e.g., airplanes, missiles, and ships) and less subject to obsolescence. C____

109. *A damage-limiting posture by both the U.S. and the SU coupled to an arms agreement (would/would not) reduce the incentive to cheat on the agreement.* C____ I____

WOULD

(2) 109.01 If offensive arms are limited and both sides have strong active and passive defenses, additional offensive weapons are largely countered. C____

(2) 109.02 Evasion is a major concern in such talks. C____

(4) 109.03 Marginal benefits of cheating are reduced. C____

(4) 109.04 A modest damage-limiting posture would be stabilizing. C____

WOULD NOT

(3) 109.51 Assured destruction postures are inherently more stable than damage-limiting postures; thus the incentives to cheat and to launch a first strike would be increased rather than reduced. C____

(4) 109.52 A major technical breakthrough could make cheating attractive. C____

(4) 109.53 A strong damage-limiting posture would increase the incentives to cheat in order to maintain assured destruction. C____

110. *The U.S. and the SU (should/should not) exchange views on the intent and purpose of their civil defense programs in any arms agreement discussions.* C_____ I_____

SHOULD

(2) 110.01 This program would make clear that both sides do not want strategic war and are protecting themselves against cheating by the other. C_____

(3) 110.02 A major SALT value would be an exchange of views on all strategic issues. C_____

(4) 110.03 This relates to defense against the CPR in the future for both sides. C_____

SHOULD NOT

(2) 110.51 This program would only complicate and bog down the negotiations. C_____

(3) 110.52 CD is not a direct threat to either nation. It does not occupy a critical place in the strategic equation. There is no CD race. C_____

111. *The U.S. and the SU (should/should not) have roughly symmetric strategic postures in regard to numbers and types of offensive and defensive systems.* C_____ I_____

SHOULD

(2) 111.01 This is the point of greatest stability. C_____

(2) 111.02 This concept is easier to sell to our own people. C_____

(4) 111.03 The U.S. should strive for technological superiority of a particular unit. C_____

SHOULD NOT

(2) 111.51 This is not possible because the U.S. and the SU have different strategic objectives. C_____

(2) 111.52 The sets of third parties hostile to the SU and to the U.S. are different. C_____

(3) 111.53 The point of greatest stability is for the more open society to have more strategic forces. Also hardness, mobility, warning, and defenses have as much to do with stability as mere numbers. C_____

(3) 111.54 The fact that something is easy to sell doesn't make it a desirable product. C_____

(4) 111.55 The stable late 1940s and 1950s were times of U.S. supremacy (nuclear). C_____

GENERAL COMMENTS

(2) 111.90 If the U.S. (or the SU) goes to war with the CPR, resources may be so exhausted that the U.S. (SU) is prey to the SU (U.S.). C_____

(4) 111.91 (Re 111.90) The desirability of this concept could reverse once either the U.S. or the SU is fully mobilized. C_____

112. *A high level of mutual deterrence between the U.S. and the SU (would/would not) have a major impact on NATO.* C_____ I_____

WOULD

(2) 112.01 This posture would make conventional or nuclear war in Europe more likely. C_____

(2) 112.02 This posture would lead to demands of a greater general-purpose force commitment by the U.S. in Europe. C_____

(2) 112.03 This posture could conceivably accelerate the formation of a United States of Europe. C_____

(3) 112.04 This posture would free West European nations to fight one another. C_____

(3) 112.05 Europe doubts the U.S. nuclear guarantee, and will depend more on national deterrents in the future. C_____

WOULD NOT

(3) 112.51 We already have a high level of mutual deterrence. C_____

(4) 112.52 The U.S. is a member of NATO and so is committed to its defense. C_____

WOULD

(3) 112.06 A high level of mutual deterrence would make war very unlikely, so NATO would no longer be a vital institution. C_____

(4) 112.07 The current AD mutual deterrence is unstable. This serves as a deterrent against attack on Europe. C_____

113. (Reworded) *If the U.S., in response to some major world developments, were to take civil defense off the shelf and start a major implementation of it, our principal antagonists (would/would not) view this as (1) a threat, or (2) a sign the U.S. populace supports the U.S. government in taking a firm stand.*
C_____ I_____

WOULD	WOULD NOT
(2) 113.01 They would if a major increase in our CD posture were coupled with world-wide pugnacity. C_____	(2) 113.51 The SU considers CD a normal state responsibility. C_____
(3) 113.02 The pace of the U.S. step-up would be crucial. C_____	(2) 113.52 The SU knows CD cannot prevent major casualties, so that we would not mount a preemptive attack under the assumption we could survive the retaliatory strike. C_____
(3) 113.03 This would make the U.S. less unwilling to oppose SU thrusts in third-world countries. C_____	
(3) 113.04 They would view a *major* increase as a signal of greater U.S. concern over possible nuclear war. C_____	

114. *The Soviets (do/do not) believe in the effectiveness of their civil defense program.* C_____ I_____

DO

(2) 114.01 Their belief is evidenced by the size of their training and shelter programs, the design of their new cities, and the number of their CD generals. C_____

(3) 114.02 They do--otherwise, they would not have one. C_____

(3) 114.03 Only the government believes this, not the military or the man in the street. C_____

(3) 114.04 No contrary declarations by the SU have appeared. C_____

(4) 114.05 (Re 114.52) Effectiveness is measured in lives saved. C_____

DO NOT

(3) 114.51 "Do not" in the somewhat different sense that their CD program does not unbalance mutual deterrence. C_____

(3) 114.52 The Soviet leaders, knowing nuclear technology, cannot believe their program would prevent millions of fatalities. They may believe it has internal political value. C_____

GENERAL COMMENTS

(2) 114.90 Unknowable. We have no equivalent of Congressional hearings for the SU. C_____

115. *The Soviets (do/do not) wish us to believe in the effectiveness of their civil defense program.* C____ I____

DO

(3) 115.01 The SU does publicize its CD program. C____

(3) 115.02 CD enchances both internal and external images of an SU government efficiently protecting its people. C____

(3) 115.03 This is one more way of demonstrating SU capability and resolve. C____

(3) 115.04 This signals SU determination to survive if nuclear war occurs. C____

DO NOT

(2) 115.51 The SU does not publicize its CD program. C____

(4) 115.52 This would signal the Soviets' determination to survive if their CD program were visibly effective, which it is not. C____

GENERAL COMMENTS

(2) 115.90 The SU doesn't care one way or the other. C____

GENERAL COMMENTS

(3) 115.91 The SU has mixed feelings about it. C_____

(4) 115.92 The SU doesn't waste time on this debate. C_____

200. ARGUMENTS FOR AND AGAINST CIVIL DEFENSE

Arguments for Civil Defense

(1) 201. It will significantly save lives. C_____ I_____

(1) 202. It reassures the public that there is a chance of survival in nuclear war. C_____ I_____

(1) 203. It is a necessary foundation for postattack recovery. C_____ I_____

(1) 204. ABM defense would be ineffective without it. C_____ I_____

(1) 205. It would be necessary for defense against the interceptor bursts of our own ABM system. C_____ I_____

(1) 206. It provides the nation with a meaningful preemptive strategic option. C_____ I_____

(1) 207. It is complementary to preparedness for large-scale natural or accidental man-made disasters. C_____ I_____

(1) 208. It is complementary to consumer interests in terms of reliability and safety for such items as buildings and utility services. C_____ I_____

(1) 209. Through an active civil defense program, we can prevent nuclear blackmail by an N-th country. C_____ I_____

(1) 210. It makes our posture symmetric with that of the SU. C_____ I_____

(4) 211. If limited, protracted nuclear war is an event as probable (or improbable) as spasm war, there is a need for CD systems with staying power. This is an argument for an interconnected shelter system. C_____ I_____

(4) 212. In limited nuclear war, city evacuation is a more feasible option for the SU than for the U.S. C_____ I_____

(4) 213. Shelters, particularly those with dual use, have useful lives of many decades. That is, the cost is amortized over a period of time that is long compared to the life-span of a weapon system. C_____ I_____

(4) 214. ABM and CD offer the only insurance in the event that deterrence (by assured destruction) fails. C_____ I_____

(4) 215. Since ABM (1) cannot prevent fallout, (2) cannot protect against low overpressures, (3) may not avoid fire-starting thermal attacks, (4) may not cover all communities, and (5) may not operate well at all, CD with shelters and evacuation is an important backstop. C_____ I_____

(4) 216. ABM needs CD for effective defense, since even a defended target can be killed by exhaustion or by one small weapon among decoys if the target is soft; but if it is hard (protected), then attack by many little weapons or many decoys plus a few little weapons cannot be enough. C_____ I_____

(4) 217. Shelters are cheaper and more reliable than ABM. C_____ I_____

(4) 218. The area in danger shrinks by a factor of two or three thousand if its population is provided the simplest of underground blast protection. This suggests that shelters offer a life-saving potential equaled by few other measures in the event of attack. C_____ I_____

(4) 219. The likelihood of nuclear war is not so remote as to not have a reasonable probability of occurring in "our lifetime." The consequences could be unprecedented destruction and loss of life. CD offers the best measures to minimize the loss of life and the best start on insuring recovery. A national objective should be survival of our economic and political system. C_____ I_____

Arguments against Civil Defense

(1) 251. It will cause the Soviets to plan for a surprise attack or minimum warning time in order to obtain a reasonable population kill. C_____ I_____

(1) 252. It will cause the Soviets to build more offensive weapons. C_____ I_____

(1) 253. Many people do not want to survive a nuclear attack to live in a postattack world. C_____ I_____

(1) 254. More people than resources would survive, resulting in an imbalance. C_____ I_____

(1) 255. An active or meaningful civil defense program would militarize the U.S. population. C_____ I_____

(1) 256. What funds we have must be spent on improving the U.S. as it is today and cannot be wasted on dubious civil defense programs. C_____ I_____

(1) 257. It will prevent an arms reduction. C_____ I_____

(1) 258. There would be insufficient warning time to carry out either a shelter or evacuation program. C_____ I_____

(1) 259. Active civil defense would force the Soviets or Chinese to emphasize chemical and biological warfare (CW/BW). C_____ I_____

(1) 260. An active civil defense program coupled with ABM may bring about the illusion in a crisis situation that nuclear war is an option before other alternatives have been exhausted. C_____ I_____

(1) 261. The use of civil defense procedures in a tense situation will panic the U.S. population. C_____ I_____

(1) 262. Civil defense cannot prevent an unacceptable level of damage in an all-out nuclear war, regardless of the level of expenditure. C_____ I_____

(4) 263. Given arms limitations, effective civil defense for both sides lessens mutual deterrence and makes attacks on military targets, industry, and resources in general more likely. C_____ I_____

(4) 264. Survival is basically an individual responsibility; it is every man for himself in any shipwreck. C_____ I_____

(4) 265. The most effective civil protection is orderly redistribution of population so that few would be in danger and only modest fallout protection would be necessary--the latter could be provided for nearly all on a contingency basis "as needed" or further evacuation could rescue the remainder. So what needs are there for special civil defense that an extensive urban redevelopment program could not satisfy better? At the same time, such a program would save those lives most endangered at present, i.e., the underprivileged urban-squalor dwellers. C_____ I_____

(4) 266. No enemy is solely interested in killing people; his targets are those parts of a nation represented by its military strength and its economy or manufacturing capability. Thus we can save lives with no civil defense--just evacuate. Surprise attack against cities is neither necessary nor desirable unless they are defended by ABMs, so neither civil defense nor ABMs are desirable. C_____ I_____

(4) 267. A good shelter system combined with a workable evacuation plan can be nearly negated by a very few low-risk spoofs. Public rejection of such unpleasant exercises could mount rapidly after the first false alarm. Relatively few (less than half?) Londoners sought shelter in the tubes during the worst of the blitz--and that was in the face of real bombs, not just false alarms. C_____ I_____

300. SPECIFIC POLICY ISSUES

301. *Since civil defense at the state and local levels appears to be synonymous with disaster and public safety missions, we should capitalize on public attitudes to disaster-preparedness efforts by making the civil defense program at the federal level a part of a nationally coordinated disaster-avoidance program.*
D_____ F_____

DISCUSSION POINTS

(2) 301.01 Disaster programs are state and local responsibilities; the federal program would get bogged down. C_____

(3) 301.02 Civil defense is a *national* problem and responsibility. It can be coupled to local disaster and safety programs. This would be more economical. Also, civil defense would be more acceptable if linked to local programs, where there might be local opposition if it stood alone. Local disaster relief and protection is a more plausible contingency. People expect government involvement and would support it. C_____

(3) 301.03 Keeping the civil defense program at the state and local levels provides decentralized leadership. C_____

(3) 301.04 Key elements in disaster avoidance involve interstate commerce: e.g., improving the safety and reliability of oil and gas pipelines, shipments of BW/CW materials, and electric power networks. C_____

(3) 301.05 Past decentralization of civil defense has probably done more to kill it than any other policy would have done. C_____

(3) 301.06 Effective civil defense against nuclear threats necessarily requires federal planning, financing, and control. C_____

(4) 301.07 Except for the old "cyclone cellars" of Western Kansas, few disaster-relief actions find direct translation in a nuclear attack. It is difficult to believe that plans for flood relief in a Mississippi or Missouri town would protect against nuclear disaster as effectively as some simple, direct measures to mitigate nuclear blast and radiation. Most laymen are aware of that, and are not likely to believe that a dollar for hurricane protection is more than fifteen cents for nuclear protection, that a dollar for flood control will automatically be fifty cents for nuclear shelter, or that a dollar for better fire control in Southern California counts for more than twenty cents against the bomb. C_____

302. *All government-backed programs that have any possible civil defense utilization should have civil defense requirements imposed upon them "by design" as opposed to the "by coincidence" approach taken today.* D____ F____

DISCUSSION POINTS

(2) 302.01 This should be reworded "government-backed programs that have *important* CD uses." C____

(2) 302.02 The added cost and controversy involved in incorporating dual-use CD shelter provisions in programs of urban transportation and renewal could halt or greatly delay these programs. C____

(3) 302.03 This would require budgetary limits and a demonstration of cost-effectiveness. C____

(3) 302.04 It is already done in highway programs. C____

(3) 302.05 A distinction should be made between contingency provisions that can be incorporated organically (e.g., urban transportation and renewal designs) and those that can only be glued on in compliance with bureaucratic regulations. C____

(3) 302.06 The government should impose regulations subtly. It should not force everything underground. We should avoid the problem mentioned in statement 302.02. This may be the only way to get certain CD measures implemented. C____

(4) 302.07 Can we believe the U.S. Department of Agriculture, Forestry Service, must be legally constrained "by design" to consider CD in campsite planning? Yet those campgrounds could be useful to CD. Should our national parks (U.S. Department of Interior) provide shelters? Most of them will miss attack. Must foreign embassies (Department of State) stock shelters and mark them? Must Fish and Game officials police boats for adequate emergency rations? Boats could provide good shelter. Only *select* government programs can be affected reasonably. C____

303. *If civil defense is to expand into a dual-usage concept (e.g., subways for shelters) and impose requirements on many government-backed programs (e.g., construction, mass transit, model cities, and utilities), it is probably politically unacceptable to make the military responsible for coordinating the activities of other civilian agencies. Therefore, OCD should be transferred to a civilian operating government agency such as HUD.* D_____ F_____

DISCUSSION POINTS

(2) 303.01 This is desirable during peace, but clear plans should be worked out to turn operational authority over to the military during a near-war period. C_____

(2) 303.02 Some form of shared military-civilian control should be planned for both peace and war. C_____

(3) 303.03 It is more important that the responsibility, with *adequate authority* and *financing*, be given to an agency that is *serious* about the task. This does not exist today. C_____

(4) 303.04 *Primary* responsibility for the incorporation of shelter and evacuation capability into new construction for mass transit, utility tunnels, model cities, parking structures, shopping centers, auditoriums, and sports arenas must rest on the primary customer or owner--perhaps as directed by law. OCD cannot reasonably tell Urban Transportation to build subways instead of elevated trains, but DOT can ask OCD for *assistance* in modifying designs to accomodate shelters. C_____

(4) 303.05 A newer, more powerful civilian agency incorporating parts of OEP and OCD should be formed specifically to handle all disaster and crisis functions, from local to nuclear. C_____

304. *Instead of requiring a fixed total dollar amount for civil defense to be used to add civil defense capabilities to other government programs, it would be much easier to specify that a fixed percentage of the cost of such government programs be devoted to meeting civil defense requirements. What should such a percentage be?* D____ F____

DISCUSSION POINTS

(2) 304.01 A formula approach is bound to be wrong. Each circumstance has special features. C____

(3) 304.02 A formula approach takes no account of cost-benefit relationships and assures only that costs will be incurred. C

305. *An attempt should be made to capitalize on the growing public movement for consumer safety and protection and its inherent compatibility with civil defense objectives. For example, require builders to specify structural loads or psi ratings on homes and rooms, national building codes, burying of utility services, clear markings of date of production and estimated shelf life of packaged foods, and gas pipeline safety standards.* D____ F____

DISCUSSION POINTS

(2) 305.01 National building codes may be desirable in theory, but requirements *do* depend on local circumstances. C____

(2) 305.02 It is politically infeasible to impose national building codes. C____

(2) 305.03 Burying of utility lines is desirable but requires state legislation. C____

(2) 305.04 Food marking requirements, as well as gas pipeline standards, should be federal responsibilities, since these are interstate problems. C____

(3) 305.05 We need not choose between national codes regulating *all* building standards or none, but could nationalize only those most vital to CD. C____

(3) 305.06 Safety and reliability standards for interstate supply of fuels and energy are proper spheres for federal action--at least *minimum* standards. C____

(3) 305.07 There is high national priority on making national building codes feasible. C____

(3) 305.08 National-regional "codes" exist, but local communities may adopt, ignore, or modify them. They are not law. C____

(3) 305.09 If we had a desirable and feasible CD *program*, we could implement it with federal *incentives* for selected dual-purpose construction. C____

(4) 305.10 The combined efforts of architects, engineers, contractors, manufacturers, and building and safety professionals have produced four national-regional "codes" (for the Northeast, the South, the Southwest, and the Northwest) that are not legal codes, but rather catalogues of standards to guide more detailed, local (city or county) legal codes (specifying, e.g., thickness of insulation on wires, standards for foundation construction, and types of nails and fasteners to be used in various types of construction). Each community can adopt, modify, or reject (ignore) any portion of the "regional code." However, a city could be coerced into adopting a new section to avoid liability, e.g., specifications for footing design and hillside grading, or prohibition of flammable wallboard. If national and regional standards for blast, thermal, and fallout shelters were available, some communities would adopt them. If they were obviously useful and well-received, pressure would mount for more universal adoption--as happens with most good code standards (e.g., most cities specify chimney height above roofs).
C____

306. *Most current programs for civil defense tend to emphasize centralization of authority in the attack and postattack periods. With the growing nuclear threat (e.g., number of weapons and yield), this trend should be reversed. The federal policy should be to delegate authority to the lowest levels of local, state, and regional governments during a nuclear emergency (e.g., giving city officials authority over military units or federal employees or equipment in their areas).*
D_____ F_____

DISCUSSION POINTS

(2) 306.01 This is unworkable, as are all attempts at dual chains of command. C_____

(2) 306.02 City officials could be given authority over all federal government personnel exclusive of the military. C_____

(2) 306.03 Military units could be controlled at the state level. C_____

(3) 306.04 This is ambiguous. Some functions clearly call for decentralized control (e.g., welfare, decontamination, repairs); others clearly require centralized direction (e.g., inflation, guarantees for credit, damage compensation, information). C_____

(3) 306.05 Statements 306.01, 306.02, and 306.03 are over-simplifications. C_____

(3) 306.06 Authority can best be exercised by surviving agencies having adequate information upon which to base decisions. Until we can specify which agencies are likely to survive *and* have adequate information, this question is not resolvable. C_____

(3) 306.07 National CD officials prefer a (poor) centralized program to a (potentially cost-effective) decentralized program. C_____

(3) 306.08 Given nuclear attack, conditions will vary widely from place to place. Plan to have Army units responsive to the highest local authority (city, county, or state) available. C_____

(3) 306.09 We can have little faith in effective local control of government components. It is unlikely that such control would be practiced by "field maneuvers." C_____

(3) 306.10 We should preserve some centralized national authority. National resolve will be important in a postattack environment. Certain tasks can be delegated to state and local levels. Contingency plans should be developed in advance. C_____

(4) 306.11 The postattack period divides into two phases: (1) The immediate survival phase, when any rescue and shelter-seeking is perforce a local act; and (2) the subsequent phase, when coordinated efforts between damaged and undamaged sections become feasible and need higher authority to facilitate them. When the postattack period is so considered, the desirability of centralization/delegation of authority becomes both trivial and obvious. C_____

307. *A change in U.S. strategic policy to emphasize "damage limitation" rather than "assured destruction" would allow us to shift a significant amount (billions) of funding from strategic offensive forces to dual-use urban programs.* D_____ F_____

DISCUSSION POINTS

(2) 307.01 To keep pace with SU spending on both offensive and defensive systems, we cannot spend on domestic programs any money already allocated to strategic systems. C_____

(2) 307.02 Money for dual-use urban programs should be available in principle as the $25-billion-per-year Vietnamese expenditure decreases. C_____

(2) 307.03 (Deleted)

(3) 307.04 This would have a major impact on the military-industrial complex. The economic life of many areas depends on the activities of the military-industrial complex. C_____

(3) 307.05 Spending for new programs does not necessarily depend on reallocation of money. C_____

(4) 307.06 Dual-use urban programs may not be the most cost-effective damage-limiting measures in regard to CD. C_____

308. *The federal government must insure that the growing number of automated (computerized) local, state, and federal agency information and/or sensor systems can rapidly exchange resource and status data in order to effectively manage crises or disaster situations. An active program to bring about this data and communication compatibility and cooperation must be launched by the federal government.* D____ F____

DISCUSSION POINTS

(2) 308.01 This is a very expensive program and hence unsellable. C____

(2) 308.02 The localization of control recommended by statement 306 would obviate transmission of vast amounts of data and reduce federal control to broad directives and not tactical orders. C____

(2) 308.03 Information *collection* rather than *exchange* is the real problem. C____

(3) 308.04 The federal government could not effectively manage the postattack economy for at least one year. C____

(3) 308.05 It is important that we recognize here that we may have a fair-weather economy--one in which information collection and flow will fail hopelessly in a disaster situation, requiring startup of a standby information system not now in existence. C____

(3) 308.06 Data collection and availability are only part of the problem. Determining the tasks to be done, estimating the effectiveness and costs of programs, and getting the management machinery working are equally important. C____

(4) 308.07 This could be potentially much cheaper to the government as a whole, as opposed to the current proliferation of independent, noncompatible information systems and networks. C____

(4) 308.08 There are benefits in this approach for the normal operation of government in peacetime, and it would vastly improve the ability of state and city agencies to obtain information from the federal government. C____

400. SPECIFIC POSSIBLE CIVIL DEFENSE PROGRAM COMPONENTS

401. *Underground mass transit and highways that have shelter utilization and/or facilitate evacuation procedures.* D____ F____

PRO

(2) 401.01 These would facilitate early evacuation to peripheral points of lowest radioactivity. C____

(2) 401.02 These would ease postattack reconstruction activities. C____

(2) 401.03 Thirty percent of the space in some central cities is now occupied by highways and parking areas. Underground transit might keep central cities viable. C____

(2) 401.04 These would contribute to alleviation of pollution. C____

(2) 401.05 These would provide blast, thermal, and radiation protection. C____

CON

(2) 401.51 Very expensive. C____

(2) 401.52 To force use of mass transport, it would be necessary to raise gasoline taxes. This would create a problem with the automobile industry. C____

(2) 401.53 Ventilating underground automobile freeways is not economically feasible. C____

(2) 401.54 These are necessarily restricted to larger cities and would drive out CD programs for other geographical areas. C____

(3) 401.55 Such moot solutions should be forsaken until they are viable enough to be undertaken with only very minor CD encouragement--e.g., subsidization of 10 percent of total costs. C____

PRO

(2) 401.06 These could be continuations of the interurban highway program of $2.5 billion per year, now phasing down. C_____

(2) 401.07 Such a CD program would be politically palatable like the highway program because spread nationwide. C_____

(2) 401.08 If extended to megalopolitan corridors, underground highways would ease airport congestion and construction problems. C_____

402. *Underground public facilities (e.g., shopping centers, factories, warehouses, schools, hospitals, and clinics) that could double as shelters.* D____ F____

	PRO		CON
(2)	402.01 Such facilities would help renew central cities. C____	(2)	402.51 It costs about twice as much to go down as to go up. C____
(2)	402.02 Such facilities could be linked to an underground pipe grid system for delivery of goods and for utilities. C____	(2)	402.52 Local building codes require hospitals and schools to have windows. C____
(2)	402.03 Swedish experience demonstrates that such facilities involve lower maintenance and heating costs. C____	(2)	402.53 This plan would require large federal subsidies. C____
(2)	402.04 School auditoriums and gymnasiums could be under outdoor playgrounds. This proposal would meet the objections that most shelters are in the central city. These could double as community centers. C____	(3)	402.54 CD sponsorship of such debatable solutions to urban problems should be limited to minor encouragement, such as a proffered 10 percent* subsidization of total costs. C____
(2)	402.05 Underground municipal parking would restore ground area to tax rolls. C____	(3)	402.55 (Re 402.52) Local codes can be changed. C____

*10% of such construction is a very large sum.

PRO

(3) 402.06 Going down far enough and tunneling is not too expensive. Land usage is free. C_____

CON

(4) 402.56 In view of the current need for shelter space in inner suburbs, this building program would accentuate the decline of central cities. C_____

(4) 402.57 Underground municipal parking may be a relatively uneconomic use of subterrania because of high ventilation costs. C_____

403. *Increased public training programs for disasters of all types--natural or nuclear.* D____ F____

	PRO		CON
(2)	403.C1 Television and school programs would make this feasible. C____	(2)	403.51 Save these for periods of high crisis. C____
(3)	403.02 (Re 403.52) Avoid the problem by increasing the training gradually. C____	(2)	403.52 This program would be exploitable by pressure groups, who could charge that the administration is planning war. C____
		(3)	403.53 The potential popularity of this proposal can be judged by the extent to which such courses crop up spontaneously--inside schools and industry, or among the population at large. C____

404. *More emphasis on evacuation procedures.* D_____ F_____

PRO

(2) 404.01 This should be part of any CD program. C_____

(3) 404.02 The procedures can be kept within the planning groups until a sufficiently severe crisis arises. C_____

(3) 404.03 Evacuation is better than downtown shelters. C_____

(3) 404.04 The fact that people are reluctant to evacuate is precisely why we need more emphasis on evacuation procedures. C_____

(3) 404.05 (Re 404.51) This idea is simplistic. A statistical study of the behavior of different groups during the hurricane Camille episode would be instructive. C_____

CON

(2) 404.51 The American people won't do it. For example, they refused to evacuate when warned of the dangers of hurricane Camille. C_____

(3) 404.52 The feasibility of evacuation is both locality- and scenario-dependent. C_____

(3) 404.53 People respond well only when the necessity of a given type of response is made fully apparent--as by experience. First-occasion response is apt to be poor. C_____

(3) 404.54 Evacuation is an expensive act--$3 billion of lost products for each day of general evacuation. C_____

PRO

(3) 404.06 Adequate reception centers and areas must be available. C_____

(4) 404.07 (Re 404.54) Evacuation would not have to be carried out, except perhaps in a high-crisis period. (However, see 404.53) C_____

(4) 404.08 This is by far the cheapest of the potentially effective programs. C_____

405. *Federal requirements or active promotion to bury all future utility and communication lines.* D_____ F_____

PRO	CON
(2) 405.01 There are strong aesthetic reasons to do this. C_____	(2) 405.51 Such a program is not worth the cost. C_____
(2) 405.02 Buried lines would greatly facilitate postattack recovery operations. C_____	(2) 405.52 Such requirements should be set by state legislation. C_____
(3) 405.03 Federal promotion would be necessary because states may lack interest in the project. C_____	

406. *The creation of an adaptive national store-and-forward digital data network to tie together local, state, and federal agency information systems for both normal information exchange and crisis management of resource data. (Such a network must have short enough response time to allow efficient computer-to-computer communications and sufficient adaptability in its structure to respond to crisis situations; existing government networks do not meet these criteria.)* D____ F____

PRO

(3) 406.01 Only if the network can be proved worth the cost. This would be a major study, since control as well as information is an issue. C____

(3) 406.02 (1) Collect information, while local communities act for themselves and report. (2) Act on this information and direct effort where it will do the most good, as authority is reestablished at state and federal levels and assistance is organized. Badly damaged communities must receive outside help before organized recovery and rescue can begin. C____

(4) 406.03 Significant cost reductions are possible by volume usage resulting from the pooling of communication requirements among federal, state, and city agencies. C____

CON

(2) 406.51 This network is completely infeasible for political, economic, and technical reasons. C____

(2) 406.52 This proposal is contradictory to decentralized control (cf. 306). C____

(2) 406.53 Such an expensive network would entail economic overemphasis on the short-warning concept compared to the more likely crisis warning. C____

(2) 406.54 This network would cause saturation--too much data in too many places. C____

(3) 406.55 Why collect data for the crisis implementation of a policy when, as yet, we've not decided on even the general outline of a policy? C____

PRO

(4) 406.04 States and cities want the ability to access federal data bases. Information flow can be two-way; when this is realized, political hang-ups may be resolved. C_____

407. *Increased emphasis on satellite cities and other forms of decentralization compatible with desirable urban planning.*
D_____ F_____

PRO

(2) 407.01 This is being done now by the SU. Some new cities have a residential core, a green belt, a concentric factory ring, and radial highways. C_____

(2) 407.02 The interurban superhighway program is bringing this about naturally. C_____

(3) 407.03 Selective shifting of unwelcome activities (e.g., petroleum refining) to relatively unpopulated locales would be a desirable form of decentralization. C_____

(4) 407.04 Decentralized food stockpiles would be desirable. C_____

CON

(2) 407.51 If forced in some way by the U.S. government, subsidies would be required, and nonuniformities in the resulting pork barrels would introduce political dissension. C_____

(4) 407.52 Until we have more definite knowledge about the long-term implications for national efficiency of generalized decentralization, we should attempt only an exploratory program. C_____

408. *National requirements for providing civil defense capabilities in any construction utilizing government money.* D_____ F_____

PRO	CON
(2) 408.01 Important symbolically as an expression of government interest in civil defense. C_____	(2) 408.51 The utility of such requirements depends on the construction in question. C_____
(3) 408.02 Cost-effectiveness must be demonstrated. C_____	(3) 408.52 This is impractical. Government agencies can save money and avoid requirements by getting private contractors to build a facility, then lease it to the government, e.g., new post offices. C_____

409. *Standards and programs to insure that current efforts to automate local sensing of the environment (e.g., air pollution, water pollution, and weather) can be connected with regional or national monitors and utilized for or adapted to crisis and disaster situations (e.g., water or flood levels, or radioactive fallout).* D_____ F_____

PRO

(3) 409.01 Such capabilities would have peacetime value. C_____

(4) 409.02 These capabilities would be feasible if there were standards on the interface units between sensors and communication lines to computers (i.e., common coding and instruction schemes, regardless of sensor type). C_____

(4) 409.03 Requirements now exist for the federal and some state and local governments to obtain the same pollution information. Why not share the same sensors directly? C_____

CON

(2) 409.51 Attaching too many CD functions may price some otherwise desirable programs out of the market. C_____

(3) 409.52 There would be insufficient commonality, except for weather sensing, to make this worthwhile. C_____

410. *A smog dispersal system that can double as a smoke generator to cut down thermal effects of nuclear bursts.* D____ F____

PRO	CON
(2) 410.01 This proposal deserves engineering and costing analyses. C____	(2) 410.51 This is a crackpot idea. C____

411. *Enactment of truth legislation in areas significant to civil defense (e.g., structural vulnerability levels in homes and the shelf lives of food and medicine).* D_____ F_____

PRO	CON
(3) 411.01 To the extent feasible, this would benefit consumers. C_____	(3) 411.51 Effective enforcement would be a major problem. C_____
	(4) 411.52 This would be a waste of CD funds. C_____

412. *A national requirement that television and radio sets be equipped with a device that would automatically turn them on for warning or alerting purposes.* D_____ F_____

PRO	CON
(3) 412.01 This would benefit the electronics industry. C_____	(2) 412.51 The U.S. public would never go along with this. It is reminiscent of Big Brother. C_____
(3) 412.02 OK if it is easy and cheap to do. C_____	(2) 412.52 Such a device would have a very high cost/effectiveness ratio. C_____
	(2) 412.53 People will have sets on during high-crisis periods anyway. C_____
	(3) 412.54 There is a very large number of TV and radio sets. People would have to be persuaded to buy a plug-in type unit. There is high voltage in TV sets. C_____

500. GENERAL POLICY OPTIONS

Small-to-Moderate Cost (Less than $100 Million)

(1) 501. Kill the civil defense program totally. D_____ F_____

(1) 502. Support only the ongoing local emergency response capabilities, as is now done by supplementing state and local budgets. Abolish the federal portions of the program.
D_____ F_____

(1) 503. Let civil defense die a natural death by continuing to allow Congress to gradually reduce its annual budget.
D_____ F_____

(1) 504. Attempt to insure the maintenance of at least the current budget and program as it is today. D_____ F_____

(1) 505. At the same budget level, redirect the current program to crisis management and quick-response programs for a potential massive, short (two to three months) CD effort when world tensions warrant it (e.g., selective evacuation or makeshift sheltering). D_____ F_____

(1) 506. At the same budget level, redirect the program to maximum dual usage by strengthening government regulations in areas related to consumer interests, public safety, and disaster avoidance or reaction. D_____ F_____

(1) 507. At the same budget level, redirect the program to efforts that would maximize public impressions that we have an adequate civil defense preparedness program. D_____ F_____

High Cost ($100 Million to $1 Billion)

(1) 508. Increase significantly the current budget but maintain the current program. D_____ F_____

(1) 509. Increase significantly the current budget but establish a carefully tailored "non-provocative" program that would be useful only against a counterforce first strike but not against a retaliatory strike. D_____ F_____

(1) 510. Increase significantly the current budget but direct the increase toward only those items that have dual public desirability, e.g., consumer interests, public safety, and disaster avoidance or reaction. D_____ F_____

(1) 511. Increase significantly the current budget but utilize the increase for the crisis-management and quick-response approach to civil defense. D_____ F_____

Very High Cost (Over $1 Billion)

(1) 512. Instigate a large-scale, *dual*-use blast shelter and fallout shelter program by a combination of adequate economic incentives and regulations (e.g., underground shopping centers, schools, hospitals, and freeways). D_____ F_____

(1) 513. Instigate a large-scale, *single*-purpose blast and fallout shelter program. D_____ F_____

IV. CIVIL DEFENSE PROGRAMS RECOMMENDED BY RESPONDENTS

After the four rounds were completed, the respondents were asked this question:* "If the Administration asked your advice on a desirable civil defense program for the United States, what would you say?" This section contains their answers.

PROGRAM 1

The U.S. civil defense program should first intensify the present program *gradually*. If civil defense is provocative at all, the provocation is a function of rate of implementation. More importantly, a major step-up in a short time would create domestic dissension and would in fact not be feasible without a far greater crisis than any we have seen since World War II.

Second, civil defense should *not* be left to individual and local community initiative. The common defense is a primary federal responsibility according to the Preamble to the U.S. Constitution. It is a dereliction of duty for the federal government to ignore it. Moreover, the devolution of civil defense programs to low levels merely invites hysterical reactions, such as the Minutemen using guns to keep people out of private shelters.

Third, the program should *not* be removed from the military bureaucracy. Obviously, there must be intimate cooperation with civilian federal agencies as well as with subordinate governments, but civil defense must remain an integral part of the U.S. strategic posture if it is to overcome its unfortunate history and become a real part of our national defense.

Fourth, civil defense should be promoted by a quiet recitation of its merits in protecting lives. Exaggerated arguments that ABM is worthless without civil defense become arguments *against* ABM, not *for* civil defense.

Fifth, there are obvious advantages to dual-purpose facilities

---

*The answers were *not* submitted to the respondent corps for evaluation.

and the commonality of community and civil defense interests. This philosophy, in fact, underlies the past shelter identification and marking programs of OCD. But because civil defense is a federal responsibility, the added cost of civil defense capabilities in dual-purpose facilities ought to be borne by the federal government. Whether the facilities are constructed privately or by local governments, a variety of federal subsidies are available for them. All should be exploited; it would be foolish to try to designate one for all cases.

I cannot outline the specific measures that should be included in a civil defense program. This would require extensive study; moreover, the optimum selections will undoubtedly change over time, as a function of technology, strategic situation, and prior accomplishments of the civil defense program. One popular proposal in particular--a substitution of evacuation for shelter--should not be prematurely established as a goal, because the former is subject to gross disorganization and spoofing. In fact, there should probably be plans not only for evacuation where it proves desirable but also for control of the natural inclination to evacuate where it proves undesirable.

PROGRAM 2

One's views on the appropriate national civil defense program are shaped by his opinions of the value of damage-limitation and of the relative importance of the many demands on the national budget. I believe that an appropriate national damage-limiting posture would emphasize reasonable effectiveness against limited attacks. Such a program would cost $1.5 to $2.0 billion annually (without inflation) for an active defense system and perhaps $0.50 billion annually for R&D to improve and modernize that limited system. In addition, between $0.25 and $0.50 billion annually should be expended on civil defense emphasizing conveniently located, functional fallout shelters and plans for mitigating the consequences of limited attacks.

PROGRAM 3

The short-range civil defense program most sellable at this time would stress preparations for ad hoc measures in crises. A longer-range program would decentralize (to state and local levels) control and preparation, dispersing federal funds as a political lever. Similarly, dual-purpose (and more expensive) programs (e.g., building tunnels that could be used as shelters) could be promoted on their revenue-disbursing advantages. Given the current "taxpayers revolt," civil defense planners should be keenly aware of the possible and exploit the political scene.

PROGRAM 4

The U.S. defense program should:

1. Develop the launch-on-warning option.
2. In SALT, press for limitations on *offensive* forces but not on *defensive* forces.
3. Develop a dual-use ICBM/mid-course interceptor for continental defense.
4. Develop Western Europe into the fourth independent nuclear power.
5. Spend up to $2.5 billion annually on:
   a. Mass urban underground transportation and high-speed underground railways in megalopolitan corridors;
   b. Underground parking;
   c. Dual-use shelters under all school playgrounds.
6. Design the elements of item 5 for civil defense in protracted nuclear war and for trans-attack and postattack recovery.

PROGRAM 5

The U.S. civil defense program should:

1. Continue marking and stocking existing fallout shelters.
2. Create standby urban evacuation plans, so that evacuation could be accomplished with some semblance of order.
3. Emphasize preparations (e.g., stockpiles and simple shelters) in areas to which people will evacuate rather

than construction of blast and fallout shelters in downtown areas.

4. Train local public-order personnel to manage evacuation--especially if the federal government begins assisting states and cities to increase these forces to ensure current law and order.
5. Because nuclear weapons will probably be detonated in this country in the next hundred years (though *not* in the immediate future), develop long-term programs that stress standby plans, at a budget level that can be kept constant for a long time.

PROGRAM 6

National strategy for damage limitation should emphasize war termination *before* cities are attacked. The United States should declare that it will not be the first to attack cities or other targets of high value. The U.S. civil defense program should have the following basic elements:

1. A national program to provide fallout protection for everyone, with
   a. Federal requirements that new buildings provide shelter spaces;
   b. Provisions for shelter and postattack recovery spaces in federally sponsored construction;
   c. Federal construction of dual-purpose facilities if shelters cannot be found otherwise.
2. Education of the population in the use of fallout shelters and postattack recovery.
3. A national data collection, processing, and communications network and warning system to enable people to reach the fallout shelters.
4. Recovery programs, with local control over immediate disaster-recovery operations and national control of post-nuclear-attack recovery.

The CD program should *not* attempt to protect people from direct effects or provide for evacuation of cities.

PROGRAM 7

The U.S. civil defense program should:

1. Maintain a catalog of all available fallout shelters and their ratings (including home basements)--as was done in the present program, but more extensively.
2. Prepare a CD mobilization plan for the U.S. (for possible crisis implementation) that includes:
   a. Phased evacuation options near military centers and urban areas:
   b. Emergency shelter construction (fallout and blast);
   c. Plans for augmenting shelter supplies:
   d. Measures for maintaining a flow of supplies to evacuee reception areas;
   e. Measures to facilitate recovery (e.g., protection of property, stockpiles, emergency production, economic policies, and organized command and control).
3. Maintain a staff of professionals at local, regional, and federal levels who are all federal employees and whose principal tasks are outlined above. Discourage volunteers and publicity except during international crises.
4. Develop *prototype* fallout and blast shelter programs to establish alternative designs, costs, and rapid construction methods that use local labor and materials.
5. In peacetime, coordinate all plans and policies for CD options among local, regional, and federal levels. Actual implementation should be largely decentralized within the emergency federal policies and financial arrangements.
6. Allocate about $0.25 billion annually for the CD program.

PROGRAM 8

For the U.S. civil defense program, the federal government should:

1. Combine OEP and OCD, to remove OCD from the authority of the Secretary of the Army.
2. Fund a pilot program of full civil defense in one area (city or county), including dual-purpose shelter via a tunnel-grid for utilities, a CD organization, a training program, a warning and communications system, and rescue and rehabilitation plans.
3. Emphasize local planning for contingency action in times of international tension or crisis. Provide federal guidance on acuteness of threat and appropriateness of emergency actions, but allow local public servants to manage their own affairs.

4. Promote federal choice of new construction sites and designs to maximize dispersion and survival. Influence the location of new model cities, power and petroleum facilities, and storage and processing plants.
5. Amass at least a one-year surplus of basic foodstuffs.
6. Arrange treaties for massive postattack aid from unaffected foreign countries.
7. Sponsor research on underground excavation and construction techniques.
8. Harden future nuclear power plants by building them underground.
9. Offer local defense ABM to states/counties/urban areas on a shared-cost basis.
10. Extend matching funds or subsidy incentives to vital local government functions (e.g., police, fire, sanitation, power, and telephones) for hardening their control facilities and insuring communication survival. Present law provides matching funds for fallout shelters for command centers only.

PROGRAM 9

The U.S. civil defense program should compromise between, on one hand, the old practice of funding peacetime urban fire-fighting equipment that would be valuable in war; and, on the other hand, the idea of integrating civil defense into such diffuse programs as Model Cities.

Certain actions can be taken independently of other programs and directly increase industrial safety and mechanical reliability, thereby not only improving and protecting our peacetime environment, but also increasing our prospects for wartime survival.

The public today is discontent with either the reliability or the safety (interpreting "safety" broadly enough to encompass even air pollution hazards) of certain activities that should be closely connected with war preparedness. For example, certain alterations of our electric power network would not only limit the extent and duration of regional peacetime power interruptions, but would also contribute to the system's wartime viability. Moreover, relocating, hardening, or otherwise modifying gas transmission lines would reduce

the likelihood of local peacetime disasters (i.e., explosions due to leaks), while also rendering this system relatively invulnerable to wartime damage (or at least unlikely to become a secondary damage agent). Finally, the petroleum industry's refinery and storage facilities could be relocated and perhaps hardened, once again primarily to reduce peacetime hazards, but also to preclude cities being targeted in wartime simply to destroy the petroleum industry, and to promote the industry's capacity to survive attack.

These actions strengthen critical weaknesses in our war preparedness, but should be undertaken only if their costs can be justified as necessary to publicly desired improvements in our peacetime environment. Moreover, the affected industries themselves might, given well-designed incentive schemes, be willing and able to accomplish the desired changes within some acceptable timespan. Thus, we should accomplish desirable civil defense goals in a way that is entirely palatable except for the necessary tax support. I conjecture that if industry were given sufficient time to accommodate, little tax subsidization would be required.

PROGRAM 10

Reactive offense can always defeat reactive active defense for comparable costs. Therefore, any attempt to protect present U.S. population and interests with active defense is doomed to failure. Some things possibly can be preserved with reasonable probability by hiding, active defense, and hardening. We should try to preserve whatever else we treasure (the land, the environment, the people) from major attack by mutual deterrence based on well-protected and preserved assured-destruction forces. This does not mean an all-or-nothing capability. Assured-destruction forces, if well-protected, could be used in small quantities against people or property whenever people forget the realities of nuclear weapons. Let us hope that, if used with great deliberation and maximum conversation between parties, such actions would induce serious negotiation.

By burying a large portion of society, we could perhaps indulge

in large nuclear exchanges and still preserve a large portion of both sides. This would be senseless, however, unless we enjoy being buried. Besides being very expensive, such a course of action would distract attention from the many other environmental threats under which we live. Therefore, the only reason to move society underground *en masse* is not safety from nuclear attack, but for some other presently unknown advantage--e.g., underground transportation, parking lots, and stores would free more surface area for other uses.

The only use for civil defense is to save people from small attacks initiated by mistake or by a fanatic. The level of preparation for such contingencies should be only slightly higher than at present. CD should be a consideration in city and transportation planning, but not the dominant one.

People often express concern about preserving society--usually U.S. society--from an all-out nuclear exchange. Rather than radically altering society to save it (i.e., burying it), perhaps we could preserve its essence at much less cost by storing and protecting genetic material representing major types and skills, book, film, and tape libraries, and some sophisticated computers and robots. The computers aided by sensors could decide when to regenerate society after a nuclear holocaust, and then raise a generation of test-tube people. The computers and robots, perhaps together with a few remaining people, could educate the new generation underground--e.g., have them read the proper books and show them what U.S. society was like via movies and videotaped TV. Then, who knows, perhaps the U.S. could start all over again. We could live our happy lives with the added joy of knowing that, come what may, eons hence there would be a bright new U.S.A.

Appendix A

COMMENTS ON THE CIVIL DEFENSE EXERCISE

by N. C. Dalkey

As one of the few Delphi studies in a major policy area, the civil defense exercise deserves careful scrutiny. It illustrates both benefits and difficulties in using Delphi procedures to assess group value judgments. The fact that the exercise "worked" at all--i.e., the respondents answered most of the questions most of the time, and generated and responded to extensive supplementary materials--is reason for optimism.

CRITERIA

At present, there is no general agreement that judgments of the desirability of a policy are objective. It is necessary, then, in assessing the usefulness of Delphi for policy studies, to consider less stringent criteria than whether the exercise produces more "accurate" answers. Two practical criteria are overriding: (a) Will the respondent group answer the evaluative questions; and (b) is the group willing to accept the final-round answers (however they are defined) as the best representative group answer obtainable *at that time*. As I remarked above, criterion (a) appears to be met by the present exercise; (b) was not investigated. (The latter criterion will be examined experimentally in the near future.)

In addition, three other formal criteria are necessary conditions for asserting that the group response represents an objective judgment, rather than an expression of individual feelings:

1. Do the respondents' opinions change significantly upon iteration? Absence of significant change would indicate that policy attitudes are unaffected by the information generated by the exercise, and thus are more like subjective feelings than objective judgments.
2. Are the distributions of responses on magnitude estimates (e.g., ratings of desirability) single-peaked and more or less regular (i.e., roughly bell-shaped)? If the distributions are flat or U-shaped (indicating polarization),

it is difficult to justify designating the median to be the "group judgment."

3. Do two similar groups (e.g., two groups formed by randomly dividing a larger group) arrive at similar group responses? If this criterion is not fulfilled, there is no justification for considering the group response an objective judgment.

The number of subjects in the civil defense Delphi was too small to furnish useful data on criterion 3. In a weak sense, criterion 3 is always fulfilled tautologically. Whatever the distribution of answers, as the size of the random subgroups increases, the means of the subgroups move closer together. In application, this criterion requires an evaluation of the observed similarity relative to what would be obtained by chance. This is not easy to compute, since the underlying distributions are usually not known.

CHANGES OF OPINION

From the point of view of Delphi methodology, one of the most important and favorable features of the civil defense exercise was that many of the questions involved a definite, systematic change of opinion, both in direct responses and in ratings of desirability and importance. A rough estimate indicates that the changes between rounds numbered about the same as those in exercises involving factual material.

A more interesting question is whether the responses exhibited *convergence* on iteration. Because of small and changing numbers of answers, the amount of convergence (or divergence) can be estimated only crudely. However, even measured roughly, the responses to the civil defense questions (300, 400, and 500 series) show a definite pattern. Between Rounds 1 and 2, for a majority of the questions, there was discernible convergence for ratings of both desirability and feasibility. However, between Rounds 1 and 3, there was still convergence for a majority of the feasibility ratings, but divergence for most desirability ratings.

For evaluating the usefulness of Delphi in policy studies, the desirability ratings are of greater interest. Numerous past exercises

have shown that convergence can be expected in factual judgments, such as the feasibility ratings. However, few exercises have dealt with value judgments. The data are not sufficient to justify rejection of the hypothesis that the divergence between Rounds 1 and 3 is due to chance, but the amount of convergence between Rounds 1 and 2 appears to be beyond the chance level. It is plausible that much of the divergence on Round 3 was caused by the pro-and-con supplementary material, as discussed below.

DISTRIBUTIONS

The number of respondents was too small to permit other than qualitative assessment of the reasonableness of the distributions of answers. For the strategic questions (100 series), this can be examined only for the ratings of confidence and importance, because the primary question was posed in a binary form (discussed below). However, the distributions for most civil defense items (200 series) are single-peaked and regular--i.e., roughly bell-shaped. The data are thus compatible with the presumption that a reasonable group response exists for questions concerning civil defense issues.

BINARY-FORM QUESTIONS

A serious issue raised by the exercise is the appropriateness of binary-form questions (e.g., should/should not) for Delphi studies of policy judgments. A basic goal of the Delphi approach is to ascertain the maximum justifiable agreement within the panel. Binary-form questions can obstruct this goal in two ways: (a) The tabulation of for-and-against responses can mask the existence of a reasonable group response of the sort discussed above; and (b) the form of the question may intensify polarization (divergence) on feedback. The civil defense exercise furnishes some evidence for objection (b). In general, where sharp disagreement on the primary question occurs (as in 101, 107, 109, 113), each side tends to express high confidence in its answers (111 is an exception).

It is common to interpret a wide dispersion of answers as

disagreement within the group. This can be a serious misunderstanding of the effect of inadequate information on the distribution of responses. If insufficient factual evidence exists to resolve an issue, wide variations among the group responses are not only reasonable; substantial unanimity would indicate a high degree of *bias*. A wide dispersion of answers is more correctly interpreted as *uncertainty* or lack of information on the part of the group.

The binary-form question is not suitable for showing the range of responses, and thus cannot demonstrate the degree of uncertainty. Confidence ratings help clarify the degree of uncertainty, but, as Fig. A-1 shows, they can also be misleading. In the illustration, the group is about evenly split between "shoulds" and "should-nots." Those clustered about the neutral point can reasonably express high confidence in their judgments. This set of judgments would be

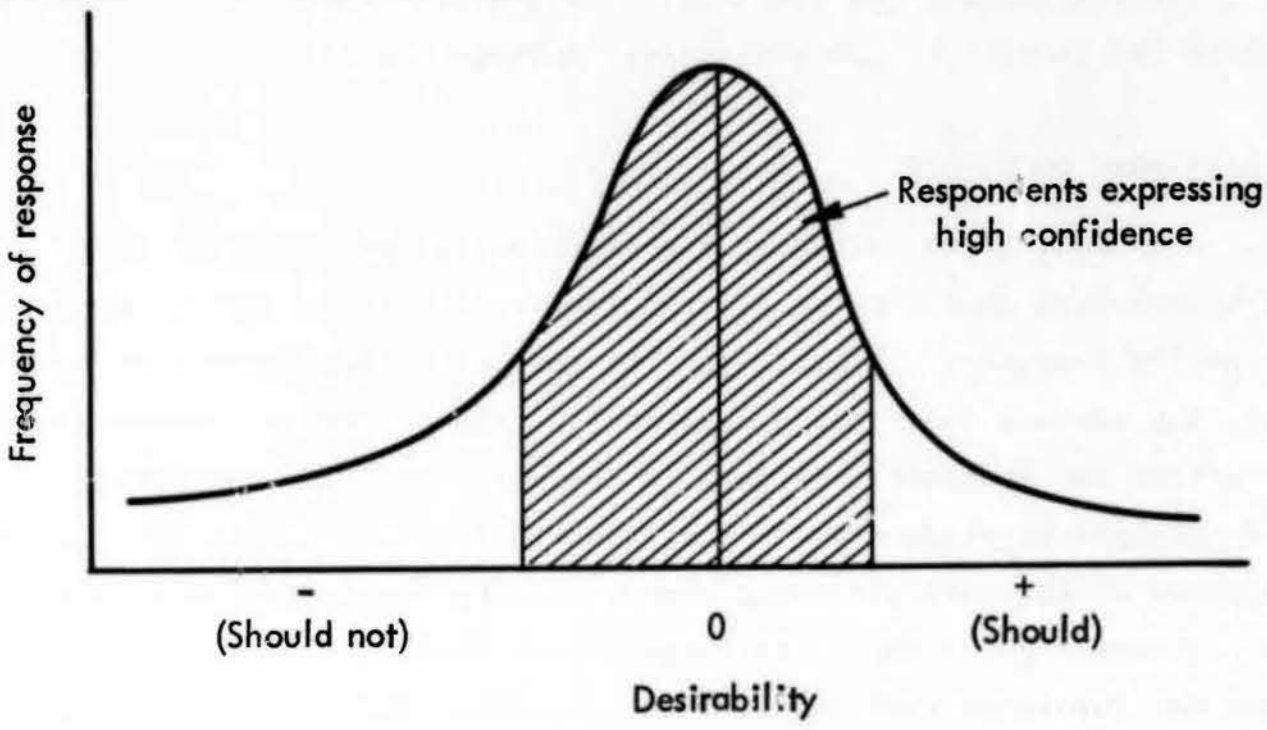

Fig. A-1 — Illustration of apparent polarization in spite of underlying agreement

interpreted as polarization; yet the diagram actually indicates substantial agreement.*

SUPPLEMENTARY MATERIAL

A major portion of the civil defense exercise consisted of eliciting and evaluating arguments for and against policy positions. Unfortunately, the best evidence we have from other studies indicates that such material is likely to be biasing rather than illuminating. The arguments are generally expressions of opinion, no more objective than judgments concerning the primary issues. Since the role of such material in the exercise itself is not well-defined, the individual responses generated and their effects on the group response are arbitrary.

Another problem with the structure of the present exercise is the monotonic increase in amount of supplementary material. This has both formal and psychological drawbacks. The respondent is likely to be oppressed by the irreversible growth of secondary and tertiary considerations. (There are no natural limits other than constraints on the exercise manager's and the respondents' time.) From the formal point of view, the interaction of supplementary material and judgments concerning the primary issues is practically impossible to assess, and thus represents a significant uncontrolled element in the exercise.

Monotonic growth is not inherent in the inclusion of supplementary information. A more desirable pattern would be an initial expansion

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*Author's note (EWP): This point is well taken. It is agreed that policy Delphi questions should not be binary. One should preferably ask a respondent to choose a number from -10 to +10 to represent his assessment of the desirability of action based on a particular concept, and then to attach a second number between 0 and 10 representing his strength of feeling about or his confidence in this assessment. Past experimental work on value judgments indicates that when frequencies, whether or not weighted by confidence, are plotted against desirability, the resulting curve will be like that shown in the figure. The peak may, of course, be skewed to right or left. However, a bimodal curve or even a scatter diagram *could* arise. We do not know in which category the "polarized" results in series 100 fall.

of supplementary material, followed by a contraction in later rounds, where the contraction is an integral part of the group interaction. Techniques for accomplishing this pattern are available. They include the use of clustering routines for aggregating reasons, and, for example, relevance-tree interrelation of reasons and judgments on primary issues. In the present state of the art, these techniques are likely to be time-consuming for both respondents and exercise managers.

"DEPTH" OF AN EXERCISE

A potential reason for including supplementary material in a policy exercise is to combat the apparent superficiality of a questionnaire. The aim is understandable, but hardly defensible. A Delphi exercise can be conducted at many levels of detail. The level selected for a given study will clearly depend on the resource constraints and the expected "solidity" of the generated information. A straightforward questionnaire, with questions constant throughout the exercises and elementary feedback, is hopelessly inadequate to express the full complexity of a policy problem--but of course that is not the function of such an exercise. In the elementary Delphi study, the complexity is allowed to remain in the minds of the individual respondents. The exercise is simply a summative process with a few compensatory devices to combat individual bias and incomplete points of view. If the complexity has not already been internalized by the respondents, an elementary Delphi exercise will not compensate for their failure to do so.

To dissect the problem and display the complexity, a more intricate exercise is required. It is feasible to employ Delphi procedures to elicit the elements of a model--in fact, this was a major goal of the first exercise explicitly labeled "Delphi." More generally, Delphi can be used to identify the more significant factors determining a policy decision, to weight those factors in importance, and to assess their relevance to a specific policy issue. The techniques are still elementary, but certainly more effective than the common practice of "laying out" the problem in a seminar.

Appendix B

ADDITIONAL COMMENTS BY RESPONDENTS

During the course of the civil defense exercise, the respondents contributed many comments that were not introduced to the group discussions in the succeeding rounds. A comment was withheld for one of the following reasons:

1. It was made on the final round.
2. It overlapped or duplicated other comments.
3. It could not be classified under any issue.
4. It concerned a secondary rather than a major issue, and would have led the group into arguments about arguments.
5. It constituted general "words of wisdom" or a "pure" opinion explaining the individual's vote on the issue.
6. It was emotional, sarcastic, or facetious.

In addition, subarguments were not returned for the section on arguments for and against civil defense nor for the section on general policy options.

While these comments may not have been useful to the Delphi exercise itself (in the judgment of the monitors), many of them do provide insight into the reactions of individuals engaged in such a Delphi and also into the attitudes or reactions that the issues surrounding civil defense can produce. Therefore, these comments are collected in this appendix.

GENERAL COMMENTS

On the Delphi itself:

> I don't consider these very useful questions. Delphi connotes gobbledy gook as in astrology and palmistry and I'm afraid that is happening here.
>
> There seems to be no attempt to consolidate group opinion, but only to expand shadings with additional questions.
>
> I hate multiple-choice questions.

STRATEGIC QUESTIONS

On the relationship of strategic issues to civil defense (108, 113):

> I rankle at trying too hard to link CD with strategy. Do we look at the Soviet Union's CD program and say, "Aha! They are planning a first strike!"? No! We say, "They are prudently preparing to minimize danger and damage in the event of a disaster." And that is the rationale *we* should use for *our* CD program. Moreover, it should take into account the psychology of the populace, which means minimize publicity until something happens that makes people CD-conscious--then be sure you have plans and programs in which they can participate. I don't believe we have to debate high strategy in order to discuss CD.

On the question of assured destruction (101):

> The main difficulty of assured destruction is its definition.
>
> Alternative definitions are needed for assured destruction.
>
> I know of no alternative to assured destruction against developed nations.
>
> AD protects us against *Soviet Union* resolve; how *well* it protects is a function of *our* resolve.
>
> I interpret "assured destruction" to mean an obviously reliable capability to damage seriously any attacker; if you interpret it as the certain capability of killing a fixed percentage of his population (as the Office of the Secretary of Defense/Systems Analysis sometimes seems to interpret it), then the concept is inadequate.

In reply to the argument that assured destruction is simplistic (101.56):

> Simplistic is an imprecation used by Establishment bureaucrats against notions they are unable to refute.

On the belief in the other side's plan for a first strike (103, 104):

> Unfortunately, vulnerable forces are always enticing to military planners.
>
> How in hell would we know?

On the subargument about the Cuban crises (104.52):

> So? They then went home to build ICBMs aimed at the U.S.--something they hadn't done before!

On limited controlled nuclear coercive capability (105, 106):

> I marked "could not" because coercion between great powers is either futile or dangerous. If we say, "We are going to hurt you if you don't get out of Ruritania," they will think to themselves, "If we knuckle under to force at this point, we will have to knuckle under all over the globe; better to fight like men than live like slaves." On the other hand, I have little confidence in the strength of American morale if confronted by explicit nuclear threats. A substantial minority is apt to say, "After all, Alaska is 3000 miles from Cambridge and can't really constitute a vital national concern, despite the assertions of the mad scientists in the AEC and the millionaires of the international oil interests; furthermore, history does show that the Russians were there first, and you can hardly expect a modern Russian government to honor an unequal treaty signed by a despotic czarist regime. By making a bold concession on Alaska, we will get world public opinion on our side so that the Russians will feel compelled to negotiate their claims on California."

On a damage-limiting posture as an inhibition to cheating (109):

> Grave robbers (cheaters) have proven throughout history to be a match for the most formidable pyramids (damage-limiting postures). A good burglar alarm (early warning system) plus a vigorous police force (ABM) could have preserved the peace

for many of the long-dead pharoahs (U.S./SU cities).

I assume this question asks whether the incentive to cheat on an agreement that includes damage-limitation is less than that on an agreement that includes only mutual assured destruction. I can't believe that any agreement would be so comprehensive that opportunities for evasion or advantages from abrogation would profit less than cheating. Thus, I am indifferent to the question as written.

It is not clear that a damage-limiting posture has much direct influence either way, since cheating, once embraced, has numerous facets--many of which are irrelevant to CD and to other damage-limiting actions.

On the exchange of civil defense views between the U.S. and the Soviet Union (110):

We don't really have a CD *program*, so the exchange is likely to be one-sided.

Nothing about the U.S. civil defense program is hidden from anyone but ourselves, so the SU would gain little from such an exchange.

What do we expect them to say? "This detente is all a ploy. Come 197X we are going to bury you." Or, "Don't worry. We'd never strike you. That CD program is just a little insurance and you know the Chinese." My point is you are only going to get a diplomatic answer, so what the hell?

On strategic symmetry between the U.S. and the Soviet Union (111):

In preference to what? Parity would be better (for the U.S.) than inferiority, worse than superiority.

It's almost inevitable anyway.

Such an idea is too ambiguous for a yes/no answer, and too hard to define.

U.S. superiority might be more stable.

War is very unlikely (forgetting Vietnam for the moment) when one protagonist is clearly--even slightly--superior.

On the effect of mutual deterrence on NATO (112):

It not only *would* have, but already *has* had a major effect. But the relationship between CD and NATO is so tenuous that NATO should not be a major factor in determining our CD posture. Remember, NATO is a means, not an end in itself; the question of whether NATO has outlived its usefulness and should be given a diplomatic funeral (perhaps with interment at Les Invalides) would be a good topic to avoid in this exercise.

On the Soviet civil defense program (114, 115):

CD augments both internal and external images of an efficient and vigorous defense of Mother Russia.

I decline to answer because I'm just not familiar with the evidence, and I also suspect the question may be meaningless. Which Soviets? Many probably believe their CD program would be ineffective in a war with the U.S., while others may have considerable confidence in it. I doubt that many Soviets have given much thought to the question of whether or not they want the Americans to believe in the effectiveness of their CD program. That is the sort of question that residents of think-tanks like to kick around, but that rarely concerns the man-on-the-street.

ARGUMENTS FOR AND AGAINST CIVIL DEFENSE

This section raises no political questions. In my opinion, electoral influences on Congress and the President will almost certainly override their otherwise objective judgments during CD budget debates. There will *always* be a higher

priority program--e.g., Vietnam, poverty, or space.

Without regard to the nature and magnitude of the civil defense program?!

On reassuring the public of survival through civil defense (202):

Civil defense *could* reassure the public--and such reassurance could be dangerous.

Because CD irrationally heightens the public consciousness of the possibility of nuclear war, I think it tends to increase rather than decrease public anxiety.

On civil defense and postattack recovery (203):

Postattack recovery may be possible even without much CD, but good CD will obviously facilitate the job.

On civil defense being necessary to an effective ABM defense (204):

This question reminds me of the question about NATO above. If CD saves lives or makes postattack recovery possible, perhaps *in concert with* ABM, then that is an argument in favor of CD. But to say some weapon system won't work without CD is, in itself, as much an argument *against* buying the weapon system as it is an argument *in favor of* buying CD.

On civil defense forcing the Soviets to a surprise-attack posture (251):

The fact that Soviet attack plans will take into account, to some extent, our CD preparations should be considered in calculating the probable effectiveness of various weapon systems. But I interpret this statement to imply that CD will make war more likely by inducing the Soviets to adopt a "hair-trigger" posture. *That*, I think, is nonsense.

On civil defense causing the Soviets to build more offensive weapons (252):

> Certain types of CD programs might have this effect, but well-designed ones would not.

On the possible imbalance between people and resources surviving a nuclear blast (254):

> There is a big difference between survival and economic disruption, however, and the latter can hardly be a reason for abandoning survival.

On the militarization of the U.S. public by civil defense (255):

> This is not, in my opinion, a sound argument, but it will be important in any debate on the subject.

On the possible conflict for funds between civil defense and urban programs (256):

> Society currently lives under threat of nuclear war. The life-saving insurance provided by CD *could* be far more valuable than urban renewal, new transportation, or improved social welfare.

On the apparent or illusory effectiveness of defense (260):

> It is certainly possible for a strong defense posture to appear stronger than it really is.

On the inability of civil defense to prevent unacceptable damage (262):

> Hell, war *is* unacceptable. One enters into war only when the alternatives are more unacceptable, so the question is misleading.

SPECIFIC POLICY ISSUES

On the question of local control during civil defense and natural disasters (301, 301.01):

> Local control of a national problem is stupid.
>
> A professional saboteur could do no more damage than local autonomy would.
>
> Nonsense. Local autonomy has probably done more to kill CD than any other policy. The Union was formed "to provide for the common defense. . . ."
>
> A shelter is a local--even a "terminal"--defense, not an area defense, and need not depend on much city, county, state, or federal planning, financing, or control to be effective.

On imposing civil defense requirements on other government programs (302):

> Most relevant government programs such as urban transportation or renewal are too neglected already. The added cost and controversy involved in incorporating dual-use CD shelter provisions could eliminate them altogether. CD dual-use should be negotiated from strength of obvious benefit and desirability or compatibility and pay its own way.

In rebuttal to the suggestion the U.S. government impose requirements subtly (302.06):

> The U.S. government *cannot* be subtle.

On the question of transferring OCD functions to a civilian agency (303):

> Is OCD still around?
>
> (Re 303.03) The agency might be serious but the government

(Congress, President, NSC) is not.

Keep the army out of this, if possible.

Consider the parallel in the Interstate Highway Program.

On the commonality of civil defense and consumer interests (305):

It is unrealistic to assume the public, architects, city planners, or anyone else can be rational about CD.

On the merits of local as opposed to national emergency control (306):

I have little faith in any authority--local, central, or military.

On a change in U.S. strategic policy to create funds for dual-use urban programs (307):

Billions will not be allocated for any CD program until *after* a nuclear attack.

This issue as stated is tautologous.

It is stupid to tie CD to domestic programs. The credibility gap would be bottomless.

On the necessity of establishing compatible federal and local information systems (308):

Managing nationwide disaster situations should be a collective effort in which the decisionmakers, executors, and expediters are mostly *not* government employees, and the information exchange is planned accordingly.

If you have all the information, it usually isn't hard to determine a course of action--e.g., Pendleton, Oregon, survives and has a blanket factory in operation; Spokane is hit and desperately needs blankets, clothing, and lots more. Knowledge is all.

Lots of luck!

SPECIFIC POSSIBLE CIVIL DEFENSE PROGRAMS

On the subject of specific dual-use programs (401, 402, 405, 406):

Dreams, dreams, dreams!

This is a dream, not a practical approach.

In rebuttal to the cost argument against evacuation (404.54):

Nuclear war is even more expensive.

On a government-wide communications network (406):

It will never work!

On urban planning and civil defense (407):

An attempt to justify urban planning proposals for CD purposes could kill them.

I doubt that the CD people know much about desirable urban planning.

On government construction and civil defense requirements (408):

Current regulations are avoided by government leasing (rather than constructing) arrangements. This dodge is so common that most people don't know that new government buildings are *already* required to provide shelter space.

GENERAL POLICY OPTIONS

On killing the civil defense program totally (501):

CD now receives only marginal support. Complete abandonment would cause a military response by hard-core CD supporters.

On publicizing the current civil defense program (507):

Who would you kid!?

On tailoring a larger budget for a nonprovocative civil defense program (509):

> How do you do that?
>
> Such a concept is unrealistic. Civil defense is political in that it involves lots of citizens and civilian politicians. Hence, it is sloppy, blunt, and inconsistent. Therefore, don't try to transmit signals with the CD program.

On the large budget options (512, 513):

> Both single-purpose and dual-purpose shelters should be constructed if we spend that much. However, I seriously doubt that we will.

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10. ABSTRACT

Exposes opposing arguments about U.S. civil defense policy issues in order to remove CD from its past "spasm-war, two-weeks-in-a-hole" setting, to find desirable and feasible options, and to examine CD in relation to other, larger problems, including strategic issues, SALT, and both international and domestic concerns. The information was gathered by the Delphi method of eliciting and refining group judgments with several iterations of questions and anonymous responses. In the CD Delphi, the Rand respondent corps first answered questions and rated them according to importance as well as confidence in the validity of the arguments. They rated courses of action in terms of desirability and feasibility, and provided terse reasons for their positions. Opinions were freely exchanged and altered on subsequent rounds. At the end of the exercise, each respondent briefly formulated a desirable and feasible U.S. CD program.

11. KEY WORDS

Civil Defense
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