An evaluation of the United States shelter program.

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INTRODUCTION

The question of survival during a nuclear war has never faced the United States more vividly and dramatically than in this present era. Arrayed within the heartland of Soviet Russia are countless thermonuclear weapons of terrifying destructiveness which can be launched against military targets and cities within the United States. Equally formidable are the defensive and offensive capabilities of America's military might that stand ready to reply to any Soviet attack.

Compounding the political and social issues are the military and economic races that exist between the two countries continuously threatening to engulf the world into a nuclear war. For the first time since 1815 the United States is faced by an armed attack capable of penetrating the perimeter of its shore lines--an attack that will not discriminate between soldier and civilian or military targets and cities. It is a tragic deficiency of our military resources that no defense can completely prevent a well-executed enemy air offensive from inflicting irreparable damage on the population and cities of the United States. The character of modern war has now shed the armor from American isolation and has exposed our innermost hiding-places to the threat of nuclear destruction:

> It would be characteristic of a nuclear war that the effects of high yield weapons would not discriminate between soldiers and civilians. Consequently, the combination of high speed delivery systems and powerful nuclear weapons underscores the importance of total defense. . . . The character of the threat has changed since the hostilities in World War II and Korea. In the event of attack today every family in the United States could find itself on the front lines--because the front lines would be on the homefront.[1]

The probability and possibility of these two worlds of political and economic difference reaching an agreement to deter and possibly end this close contest for military supremacy is conjectural. A consideration of Communist doctrine and goals is necessary before an objective conclusion can be drawn. President Kennedy says:

> The truth is that we are caught in a vicious circle comprised in part of the arms race and in part of political conflict. For us, this vicious circle of two great powers contending with each other for sway over the destiny of man is compounded by the new dynamics of an expansive world Communism, armed with revolutionary doctrines of class warfare and modern methods of subversion and terror.[2]

In the meantime, each country continues at headlong pace attempting to unearth the technological secrets not yet revealed in order to gain "the" decisive military advantage. General Medaris, a noted exponent of the Nike-Zeus missile system, says:

It may not be technically possible to construct an

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[1]Paul C. McGrath, Defense in the Nuclear Era. A Briefing presented by the Deputy Director of Intelligence and National Security Affairs, Office of Civil and Defense Mobilization (Washington, D. C.: February 21, 1961), p. 18.

[2]John F. Kennedy, The Strategy of Peace (New York: Harper and Brothers, 1960), p. 24.

> absolute defense against ballistic missile attacks, but I insist that we can develop a weapon of suitable capability to tip the balance of power. When we can do something the aggressor cannot do, we will have a positive deterrent.[3]

The first atomic weapons dropped on Nagasaki and Hiroshima are small compared to weapons and methods of delivery developed for military specialists of today. Outstanding in America's arsenal are thermonuclear weapons like Atlas, Titan, Minuteman and Polaris--to say nothing of the space program of the future. It is readily apparent the furious rush of both countries must some day reach an impasse. Whether this will be of a peaceful nature or a nuclear exchange only the dictates of time and circumstance will determine:

> Herman Khan has a firm belief that unless we have more serious and sober thought on various facets of the strategic problem that seems to be typical of most discussions today, . . . we are not going to reach the year 2000--and maybe not even the year 1965--without a cataclysm of some sort, and that this cataclysm will prove a lot more cataclysmic than it needs to be.[4]

On the other hand, a task force report to Governor Nelson A. Rockefeller states:

> We do not believe that nuclear war is inevitable. We are confident that our nation's resourcefulness, wisdom, and purpose at the conference table will succeed in protecting world peace. If a test of military strength, however, does become necessary, we believe that our people and our democratic society

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[3]John B. Medaris, Countdown for Decision (New York: G. P. Putnam's Sons, 1960), p. 283.

[4]Herman Khan, On Thermonuclear War. Summary by Office of Civil and Defense Mobilization, PAC Paper, No. 1A, January 27, 1961, p. 1.

can be successfully defended.[5]

From an overall standpoint it would seem that America's efforts to attain a posture of military preparedness have to date been successful. At least it can be said our deterrent force has so far cautioned the Russians from initiating any overt act against us. The question is how long this military stalemate will maintain us in this exclusive position.

The gradual shift from possession of an atomic monopoly toward a position of virtual nuclear parity with the Soviet Union has deprived the United States of a significant military advantage. "It can no longer regard its massive striking power so effective a deterrent to aggression or as a guarantee of victory at acceptable cost in the event of the ultimate test of war."[6] The growth of Soviet nuclear power, together with the maintenance of huge conventional forces in the Communist bloc, has compelled the United States and other free nations to be prepared for a wide variety of military moves the Communist powers might make--from the formenting of civil conflict to the launching of an all-out war.

It is recognized there are many situations that can cause nuclear conflict--both premeditated and unpremeditated. Foremost among them is an accidental discharge of a nuclear

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[5]Special Task Force Report to Governor Nelson A. Rockefeller, "Protection from Radioactive Fallout," July 6, 1959, cf., p. 5.

[6]U. S. Senate, Committee on Foreign Relations, "Basic Aims of United States Foreign Policy," American Strategy for the Nuclear Age, eds. Walter F. Hahn and John C. Neff (New York: Doubleday & Co. Inc., 1960), p. 9.

weapon. In addition, a local war might become so vested with national interests and prestige that Soviet leaders, if faced with decisive defeat, would choose to counter with an all-out attack. This danger has probably increased because Khrushchev seems less cautious than Stalin, less secure in his grasp of power, yet freer to exercise his diplomacy on a global scale.[7] War might occur because of miscalculation of United States intentions; in a period of acute tension, verbal and even military indicators would be difficult to interpret, and the premium on a first strike might well tempt the USSR to launch a pre-emptive strike.[8]

It has been recognized for many years that manned bombers can breach United States defenses and some will reach their targets. It has only recently been brought home the complete ineffectiveness of our defenses against enemy Intercontinental Ballistic Missiles (ICBM's). To fill the vacuum and provide any real defense to the nation would require a large number of Nike-Zeus anti-missile missiles. It has been estimated that a system capable of stopping something like a 700-missile attack would mean building about 25 defense centers and 2000 Zeus missiles at a cost near $5 billion.[9] It is estimated that the lead time which must be expended on such a

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[7] The Rand Corporation, Report on a Study of Non-Military Defense, 1958, p. 2.

[8] Ibid.

[9] The Washington Post, February 22, 1961, p. 1.

complex system would not permit this apparatus to be developed prior to 1970.[10]

The uncertainty of Soviet action, combined with the uncertainty of United States action; the destructive power of a single nuclear weapon; the delivery capability of ballistic missiles; an ineffectual warning system; an apparent ineffective defense against ICBM's; the widespread vulnerability of cities; and the slow reaction times of large civilian population points up the immensity of the issues that have to be considered.[11] Of grave and terrible concern to responsible officials is the prospect of survival following a nuclear holocaust. The possibility of losing tens of millions of American lives on the one hand or in saving tens of millions on the other is appalling indeed.

> Alleviating the consequences of a nuclear war is an important objective in its own right. Even if a plausible attack a few years from now killed as many as 90 million Americans, it would still leave 90 million alive. However, terrible the prospect, it would be worth investigating whether there are measures that might increase the number of survivors from 90 million to 120 or 150 million and that the survivors could, in time, restore the national economy and democratic institutions.[12]

While deterrence can be the most desirable function of non-military defense, an adequate civil defense program has other vital advantages even if the primary function fails and

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[10] John B. Medaris, loc. cit.

[11] The Rand Corporation, op. cit., p. 3.

[12] Ibid., p. 1.

war does break out. Life-saving protection is available to the bulk of the population, and a foundation for post attack recovery is provided. Mr. Rogers Cannell is of the opinion,

> Non-military defense programs have a key role in preventing a "cold war" from becoming a "hot war". The United States announced policy of nuclear retaliation in response to major aggression can hardly convince the Russians unless we are also capable of withstanding an attack.[13]

It is obvious there is present a problem of considerable magnitude. The desirability of adopting a non-military defense program at any particular scale of cost can only be evaluated in a broad context. This requires not only an examination of the Soviet threat and its relationship to the overall civil defense picture, but an understanding of all the important facets surrounding the civil-defense program in the United States. One element in the problem would be the attitude of United States voters to support heavy appropriations for such a purpose. Another element is the estimated performance and cost of national-defense expenditures. The dependence of the defense of civilian society on the effectiveness of United States strategic-offense and active-defense capabilities should be stressed."[14] Non-military defense measures must be evaluated not only with respect to feasibility, but also in their interaction with other aspects of national defense. They should not carry such high economic costs that United States

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[13]Rogers Cannell, "The Strategic Role of Civil Defense," American Strategy for the Nuclear Age (New York: Doubleday and Co. Inc., 1960), p. 326.

[14]The Rand Corporation, op. cit., p. 3.

strategic offense, air defense, or local war forces would be dangerously weakened.[15]

It is the purpose of this thesis to evaluate the United States shelter program within the context of the overall civil-defense program. The selection of the shelter program as the theme of this evaluation is based on the assumption that there would be no civil-defense without a shelter program. This is adequately supported by the Wisconsin Case Study:

> In analyzing the programs required for non-military defense and the role of government, fallout shelters will be considered first, for the provision of shelter at least against fallout is the most important element of any serious program for non-military defense. Without such shelter, tens or scores of millions who might otherwise survive would receive lethal or near-lethal exposures to radiation. . . .[16]

It is believed basic that an understanding of the afore-mentioned problems relating to the civil-defense effort is required in order that an unbiased appraisal of the entire shelter program be gained. It would hardly be practical to conclude that the country needs shelters on the basis that shelters are a protection from radiation, and then to determine that radiation would destroy the nation's future capability for production of food. It would likewise be a waste of resources to build an expensive civil-defense system of shelter protection without first determining the capability of our military

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[15] Ibid.

[16] Non-Military Defense, Wisconsin:--A Case Study, ed. William K. Chipman. Proceeding of a Conference at The Wisconsin Center, University of Wisconsin, Madison, October 1-3, 1959, p. 19.

defenses to deny an enemy attack.

These are only a few of the many considerations that are woven into this complicated web. Take, for example, Mr. Morgenstern's views on the problem:

> Nobody has shelter; there is no place to hide in safety should a large thermonuclear war break out. There is no place for anyone to go, not for the masses, not for the common man, either in the United States, or in Russia, or in Europe; nowhere. Only the heads of government and the top military commanders are relatively safe--provided they can reach their deep shelters within half an hour or within two to three minutes, depending on the type of attack. Both the governments and military leaders have always been in safer spots than the common man--since time immemorial. They are trying to preserve this position.[17]

So the problem poses itself--whether a country can and should take measures for passive defense, by building shelters, by storage of food, medicines and equipment. With so many imponderable factors entering the balance, the issue is one of judgment, in which the protection expected from offensive, deterrent weapons must be balanced against that to be expected from passive defenses.[18] It may be that there is no point to this--that the only salvation lies in the avoidance of war through enormous military expenditures or international agreements on disarmament. If war should occur, it may be of such violence that no amount of passive protection would be effective. The question resolves itself to feasibility, costs

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[17] Askar Morgenstern, The Question of National Defense (New York: Random House, 1959), p. 9.

[18] Non-Military Defense Wisconsin:--A Case Study, op. cit., p. 2.

and timeliness.

Nearly all the authorities of non-military defense, including the Rand Report, the Rockefeller Report and, reportedly, the celebrated Gaither Report to the President, conclude that shelter can be provided at reasonable cost.[19] "If we do not change our way of life slightly, these authorities have concluded, we shall stand a good chance of losing it entirely."[20]

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[19] Ibid.

[20] Ibid., p. 22.

CHAPTER I

NATURE OF THE THREAT

Soviet Role

Assessment

It is imperative in estimating the requirements of a massive civil-defense program that an appraisal be made of the enemy in order that a reliable forecast of the nation's needs be determined. It is likewise necessary that a comparison of the two opposing systems--communism and free world--be acquired in order to determine the breadth and scope of the issues facing us.

United States Objectives

The enduring objectives of the United States in world affairs are to safeguard its own way of life, and to promote the liberty, well-being, and progress of all mankind. These objectives call for the defense of the independence of nations and for the reduction, if not the prevention, of friction and conflict between them.[1] President Kennedy has summed it up:

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[1]The American Assembly, "Goals for Americans," The Report of the President's Commission on National Goals (Columbia University: Prentice Hall, 1960), p. 299.

"Our purpose is to demonstrate at home that this great continental democracy can solve its problems by the method of consent--by a system of freedom under law."[2] The old order has been shattered by two great world wars, and for more than a generation the world has been in a process of radical transformation. The most powerful nations are ideologically divided and wrought by technological achievements, the results of which have been to revolutionize warfare to the extent of threatening all mankind with destruction.

The present world situation is far from acceptable to the American people confronted by a cold war with its idological, military, and economic relationships.[3] No doubt many necessary changes will be brought about by force and violence as countries contest with each other over national and international issues. It must be the aim of the United States to reduce the employment of force and to encourage the use of peaceful means for settling disputes. The Committee on Foreign Relations, United States Senate, said:

> The great question is whether the United States can, concurrently, act decisively to meet the succession of threats and challenges from the Communist bloc as they arise and also add new dimensions to its foreign policy by taking measures aimed at the world's other problems and at the longer-term future.[4]

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[2]John F. Kennedy, The Strategy of Peace (New York: Harper and Brothers, 1960), p. 6.

[3]The American Assembly, loc. cit.

[4]U. S. Senate, Committee on Foreign Relations, "Basic Aims of U. S. Foreign Policy," American Strategy for The Nuclear Age, ed. Walter F. Hahn, John C. Neff (New York: Doubleday and Co. Inc., 1960), p. 15.

If, however, the situation deteriorates to the point where decisive action is required, the United States must, above all, have the will and power to resist with arms any attempt to bring about fundamental changes by military action on the part of Communist countries.

Soviet Objectives

The great Communist nations of Soviet Russia and the Chinese People's Republic have long openly avowed their intention of burying the democratic system and organizing the nations of the world in a new Communist order.[5] This conflict of political and social philosophies and systems has of recent years spread over an ever-widening front. To political warfare of the propaganda and subversive types, the Communists have added economic and technical aid programs clearly designed to establish their influence and, eventually, their control over uncommitted regions of the globe. Of equal, if not greater, importance is the striking growth and rapidly mounting strength of the Communist states, economically as well as politically and militarily.

It has been thought and advanced by some experts that the economic and political changes occurring since Stalin's death would create a corresponding change in outlook and objective which would dampen revolutionary ardor and create among the Soviets a more strictly national interest in safeguarding the gains they have made.[6] There may be a measure

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[5] Ibid.

[6] Ibid., p. 303.

of truth in this outlook. Within recent years there has been a noticeable relaxation of internal pressures in the Soviet Union and a partial lifting of the iron curtain which isolated the population from the rest of the world.[7] Harry and Bonaro Overstreet take an opposite view:

> Many persons in the West have hoped that as the Soviet Union built up that "strong material base" to which it has aspired, it would become more interested in the practicalities of a going order than in Communist expansion. . . . The record does not support this hope. The Soviet people, we can assume, would be ready to drop the world revolution at any time. It was never of their devising. But the Soviet people do not make the Soviet policy. The Communist Party does that.[8]

Mr. Kennedy says, "There is no evidence . . . that Mr. Khrushchev has been deterred in the slightest from his objective of overcoming in every way short of world war what he called the 'senile capitalist system.'"[9] Confirming this attitude is the evidence that rapidly growing economic and military power of the Communists have given its leaders added confidence in their ability to surpass American economic, technological, and industrial achievements within the next twenty years.[10]

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[7] Ibid., p. 304.

[8] Harry and Bonaro Overstreet, The War Called Peace (New York: W. W. Norton & Co. Inc., 1961), cf. p. 15.

[9] John F. Kennedy, op. cit., p. 9.

[10] The American Assembly, op. cit., p. 304.

Soviet Doctrine

It is an integral part of Communist doctrine that military power, while indispensable, should be resorted to only when and if political and economic weapons have failed, or when and if military operations promise easy, quick success. This is expressed quite aptly by G. F. Hudson who writes, "Churchill once remarked, that the rulers of Russia do not want war, they want the fruits of war."[11] This does not mean they will not, in the future as in the past, make the utmost use of nuclear power as a threat. So great is now the military power of the Soviet Union that the threat of nuclear attack, freely used as blackmail, will most assuredly become an instrument of Soviet policy.[12] Certainly the threat of Russian rocket attacks against British and French forces in the Suez affair and against any American forces to be employed in Cuba points up these methods. Robert Strausz Hupe points out:

> Whatever the pace and intensity of Soviet strategies in a given period Soviet objectives remain the same. They are, in the short run: First, to force the withdrawal of the West from its strategic footholds, especially from the SAC network of bases: second, to compel the West to direct vital economic and military resources from Europe: third, to take Western pressure and attention off Eastern Europe: and fourth to exacerbate the divergencies within the Atlantic Alliance.[13]

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[11]Harry and Bonaro Overstreet, op. cit., p. 5.

[12]The American Assembly, op. cit., p. 305.

[13]Robert Strausz Hupe, "The Protracted Conflict," American Strategy for the Nuclear Age, ed. Walter F. Hahn, John C. Neff (New York: Doubleday & Co. Inc., 1960), p. 27.

Protracted conflict appears to be the obvious answer. A strategy of indirect threats or in which no one single move constitutes adequate provocation for committing SAC's deterrent force.[14] Robert Strausz Hupe says the success of this program is hinged directly on our fears that any introduction of such weapons would surely produce a chain reaction.[15]

Under these circumstances it is a matter of life and death for the United States and other nations of the free world to maintain their defenses at the highest state of efficiency:

> If it is so very important to Russia that the West be a house divided against itself, E. B. White points out, then it should be equally important to the free nations that they stand together, not simply as old friends who have a common interest but as a going political concern.[16]

The United States cannot afford to relax its efforts to maintain and perfect both nuclear and conventional forces of sufficient strength to deter the Communist powers from a surprise attack or from military aggression, even with conventional weapons or on a limited scale.

Peoples Republic of China

It is difficult to evaluate the weight of Chinese Communist military power as a component of the total Communist strength. With a population of over 600 million, the Peoples Republic has an unsurpassed manpower potential along with an industrialization factor that confirms they are able to provide

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[14] Ibid., p. 107. [15] Ibid.

[16] Harry and Bonaro Overstreet, op. cit., p. 331.

modern armament for a huge conventional army.[17] With this army they are already exerting great pressure on neighboring states such as Burma, North Vietnam etc. "A crucial point will be reached when the Chinese Communist regime comes into possession of nuclear weapons, which may be at any time within the next five years."[18]

A look at the Communist high-potentate is appropriate as part of the overall Soviet role. President Kennedy has classified him:

> Mr. Khrushchev is no fool--and the American people now know that beyond a doubt. He is shrewd, he is tough, he is vigorous, well informed and confident. . . . He was not putting on any act--he was not engaging in any idle boasts--when he talked of the inevitable triumph of the Communist system, of their eventual superiority in production, education, scientific achievement, and world influence.[19]

Anne M. Jones credits Khrushchev's accomplishments as follows:

> First, he has placed increasing emphasis on attempts to strengthen Communist capabilities for relatively "bloodless" world revolution. Second, he has adapted military-force structure to nuclear realities--an attempt to prepare Communist forces for world revolution through conquest if necessary.[20]

Harry and Bonaro Overstreet have gone one step further and credited Khrushchev with twisting the framework of "peaceful coexistence" to specific advantage of the Soviets:

> By lowering tensions he has tried to make room for a free play of mutual suspicious, irritations, and

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[17]The American Assembly, op. cit., p. 306.

[18]Ibid. [19]John F. Kennedy, loc. cit.

[20]Anne M. Jones, "Changes in Soviet Conflict Doctrine," American Strategy for the Nuclear Age, ed. Walter F. Hahn, John C. Neff (New York: Doubleday & Co. Inc., 1960), p. 152.

> rivalries within NATO. Again in September 1960, he tried to split the United Nations into colonial and anticolonial blocs.[21]

Actually "peaceful coexistence" as devised by the Communists call for periods of advance alternating with periods of equilibrium, during which one had to make concessions to the enemy. These "compromises", however, should never be allowed to weaken the basic Communist determination to win the life and death struggle. War between the Soviet Union and its enemies is considered "inevitable" only if the enemies choose to resist.[22]

Khrushchev is playing for keeps. He has left no room for doubt on this score. Moreover, his current tactics serve notice that his drive for power will be urgently stepped up in the period ahead. His attempted grab in the Congo and his assault on the United Nations have about them a now-or-never quality which give the impression that time is of great importance in Khrushchev's master-plan.

In brief, there are many forces at work in the Soviet Union which can complicate the life of Soviet policy makers and Party leaders. None of these forces, however, seem powerful enough to pose a serious challenge to the Soviet regime. Barring war or other unforeseen developments, the regime's iron grip

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[21]Harry and Bonaro Overstreet, op. cit., p. 27.

[22]Gerhart Nemeyer, "The Ideological Core of Communism," American Strategy for the Nuclear Age, ed. Walter F. Hahn, John C. Neff (New York: Doubleday and Co. Inc., 1960), p. 63.

over Soviet society is not likely to loosen.[23]

The Future

Communism thrives on conflict and tension. "Were it not for these tensions which the Communists create deliberately at the very time that they protest a desire to alleviate them, I suspect communism would collapse of its own dead weight."[24] We must continue to expect tensions since the very survival of the Communist system depends on their maintenance. The Free-World should expect the Soviets to continue along this same pattern and attempt to devise methods to eradicate these Russian projections.

The great question is whether the United States can, concurrently, act decisively to meet the succession of threats and challenges from the Communist bloc as they arise. Although the past few years have seen many Communist gains, as well as some setbacks, the firm stand taken by the Free-World serves notice to Khrushchev he is treading on thin ice. "If the Free-World can make a clear appraisal of itself and of what a communist world victory would mean, the balance of power may

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[23] Vladimir Petrov, "Whither Soviet Evolution," American Strategy for the Nuclear Age, ed. Walter F. Hahn, John C. Neff (New York: Doubleday and Co. Inc., 1960), p. 81.

[24] Paul C. McGrath, Defense in the Nuclear Era. A briefing presented by the Deputy Director of Intelligence and National Security Affairs, Office of Civil and Defense Mobilization, Washington, D. C., February 21, 1961, p. 2.

just as decisively shift against Khrushchev."[25]

Threat and Counter-Threat

Deterrent

The American military deterrent force represents a powerful and highly effective combination or mix of several services and military weapons. Included are operational missiles of all kinds, thousands of jet aircraft, a large fleet of aircraft carriers, nuclear powered submarines and ground force units of the Army and Marine Corps trained in the combat use of tactical nuclear weapons.

A Comparison

The Soviet armed forces have likewise developed a powerful nuclear capability. Today, the Soviet military establishment can fight an unlimited nuclear war or a limited nuclear war or a non-nuclear war.[26] The Soviet's greatest advantage is in land power and with more than 12 divisions to every one of ours, their lead is far greater on land than in the missile race.[27] There is no doubt in the numbers of military manpower. All of NATO possesses 21 divisions: The Soviet Union has 175 divisions--2.5 million men.[28]

With regard to long range missiles, there is a

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[25] Harry and Bonaro Overstreet, op. cit., p. 319.

[26] Ibid., p. 5. [27] Ibid.

[28] John F. Kennedy, op. cit., p. 194.

considerable controversy. Dr. Paul C. McGrath, Deputy Director of Intelligence, Office of Civil and Defense Mobilization (OCDM) sums it up as follows:

> The Soviet Union may lead in the development of ICBM but not by very much. The United States and probably the Soviet Union have a small number of ICBM's in operational readiness already. . . . The United States plans to continue increasing its nuclear retaliatory inventory of liquid-fueled ICBM's to a total of 270 operational Atlas and Titan missiles by 1963. All of the Titans and about 60 of the Atlas missiles will be in hardened underground sites. . . . The minuteman will have the advantage of mobility. . . . The United States is expected to construct several hundred Minuteman ICBM's. . . . While the United States and the USSR probably are approximately equal today in terms of numbers of operational intercontinental missiles, it is widely believed that the Soviets plan to produce more of these early liquid-fueled missiles than does the United States. . . . In the military field, the Soviet's slight advantage, if any, in the production of very long-range ballistic weapons is compensated for by other elements of United States nuclear power. Whatever advantage the Soviets may have had in long-range rockets never has been an absolute one. For example, the United States has many operational ballistic missiles of 1500 mile range, and about 60 of these intermediate range ballistic missiles with nuclear capabilities are deployed at bases in the European area within range of the Soviet Bloc. Soviet intermediated range missiles of course could not reach targets in the United States, except for Alaska.[29]

In addition to the fixed missile sites, growing in numbers and in hardness from 1960 through 1965 and beyond, the Soviets will be challenged by the first nuclear submarines armed with the Polaris missile.[30] It is estimated by 1963 that Minutemen mounted on moving railway cars and missiles to be launched from

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[29]Paul C. McGrath, op. cit., pp. 6-8.

[30]Non-Military Defense, Wisconsin:--A Case Study, ed. William K. Chipman (Proceedings of a Conference at The Wisconsin Center), University of Wisconsin, Madison, Oct. 1-3, 1959, p. 14.

aircraft will be operational.[31]

President Kennedy in his book, Strategy of Peace did not fully agree with Dr. McGrath's late estimates.[32] However, based on a time differential of one year, it is questionable whether the following opinion still prevails. President Kennedy's estimates in 1960 were:

> We are rapidly approaching that dangerous period which General Gavin and others have called the "gap" or the "missile-lag period", in the words of General Gavin, "in which our own offensive and defensive missile capabilities will lag so far behind those of the Soviets as to place us in a position of great peril." The most critical years of the gap would appear to be in 1960-1964.[33]

The Defense Department's interpretation of the missile data was presented to the appropriate Congressional Committees early in 1960 by Secretary of Defense Gates. He said:

> If we compare the estimated Soviet ICBM and sea-launched missile programs with plans for deployment of United States ICBM's and Polaris missiles, we note that the Soviets may enjoy at times a moderate numerical superiority during the next 3 years. This difference in numbers appears to peak during the 1962 period. Our estimates indicate that both before and after mid-1962 the numbers are closer together.[34]

International Dangers

It is recognized that there are many situations that

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[31] Ibid.

[32] John F. Kennedy, loc. cit., p. 194 cf.

[33] Ibid., p. 34.

[34] Henry E. Glass, Address Before the Conference on the Soviet Union, Western Michigan Univ., Kalamazoo, Michigan, March 21, 1960, p. 24.

can cause nuclear conflict--both premeditated and unpremeditated. We realize the possibilities of war by inadvertance, the calling of a bluff, the sudden spreading of a limited war.[35] All too familiar are the miscalculations of Korea--both Soviet and United States--our near intervention at Dienbienphu in 1954, and the Soviet threat of rocket war in the Suez invasion of 1956. President Kennedy says, "Let no one think, therefore, that a Soviet attack, inadvertent or otherwise, is impossible, because of the H-bomb damage which we would still hope to rain upon the Soviets."[36] As an example of the terror we face, consider this authentic report outlined by a national magazine.

> It reported events which took place in December of 1960 when the most powerful radar system ever built and manned by United States defense forces inadvertently reported as "99.9 percent certain" that a ballistic missile attack had been launched against the North American continent.[37]

Herman Khan an accepted authoritarian on Soviet policy has presented in his recent book an objective analysis of the 5 possible ways nuclear war can take place:

1. A Soviet attack "out of the blue."
2. An "Accidental" accident.
3. An ultimatum issued by the United States which was unacceptable to the USSR and from which we refused to back down.
4. A reversal of the above national positions.
5. A "non-accidental" accidental war arising from

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[35] John F. Kennedy, op. cit., p. 37.

[36] Ibid.

[37] John G. Hubbell, "You Are Under Attack," The Readers Digest, April, 1961, p. 37.

either 3 or 4 above.[38]

Estimate of Soviet Intentions

The probability of anyone predicting with any degree of reliability Soviet intentions are about as positive as winning a contest in a game of "Russian Roulette."

> Clearly, the question of whether or not the USSR will initiate war--and, if so, what type of war and when--cannot be answered by considering any single factor or set of factors. Existing weapons systems permit Khrushchev a broad freedom of choice whether nuclear, conventional or limited, and he himself has predicted new and advanced weapons for his arsenal.[39]

Basically, Soviet attack is possible, though of course by no means assured. Despite the defensive and offensive strengths of the USSR there are many good reasons why the Soviet rulers would not wish to embark upon the pursuit of courses of action designed to lead to general war with the United States. Dr. McGrath is of the opinion:

> In the foreseeable future it would seem to be beyond Russian capability to destroy enough of our world-wide offensive power in one blow to make the risks of an all-out surprise nuclear attack acceptable to the Soviet ruling class.[40]

It can be predicted that the problem of surprise attack will become increasingly difficult for the Soviets as

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[38]Herman Khan, On Thermonuclear War. Summary by Office of Civil and Defense Mobilization, PAC Paper, No. 114, January 27, 1961, p. 10.

[39]Anne M. Jones, "Changes in Soviet Conflict Doctrine," American Strategy for the Nuclear Age, ed. Walter F. Hahn, John C. Neff (New York: Doubleday and Co. Inc., 1960), p. 162.

[40]Paul C. McGrath, op. cit., p. 16.

each new long-range missile is added to the United States inventory. Other authorities, including the Secretary of Defense and the Chairman of the Joint Chiefs of Staff confirm the above opinion. They are in general agreement that the likelihood of enemy attack will decline as we obtain submarines armed with Polaris missiles in 1961, finish work on our hard cites for ICBM's and place Minutemen in an operational status in 1963.[41]

Nuclear Weapons Effects

General

To make a proper evaluation of the overall threat, it is necessary to consider the nature of the threat.

The basic effect of a nuclear detonation is the very rapid release of enormous amounts of energy in a very limited space. The total energy depends on the size and nature of the weapon and may be the equivalent of exploding 20 million tons of TNT.[42] This violent energy release takes several forms, mainly, heat, blast effect and nuclear radiation. Although the effects of heat and blast produce devastation and death in the immediate area of the nuclear explosion, the hideous feature of this weapon is the wide area of fatalities and injuries that radiation burns will produce on victims many

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[41] Non-Military Defense, Wisconsin:--A Case Study, op. cit., p. 13.

[42] Committee on Fallout Protection, Survival in a Nuclear Attack. A report to Gov. Nelson A. Rockefeller, State of New York, Feb. 15, 1960, p. 24.

miles distant from the location of the explosion.

Heat Effects

The effect of heat though deadly in the immediate area rapidly lowers in intensity depending on the distance from the fireball. The initial heat effect is of relatively short duration but is so intense that it can ignite combustile materials and inflict second degree burns more than 25 miles away.[43] The thermal radiation or heat emitted within a few seconds by a five megaton surface burst may produce third degree burns, charring, out to nine miles from the point of explosion, and second degree burns, that is, burns with blisters, can occur within 11 miles, covering an area of about 380 square miles.[44] With an air burst it is expected that personnel would receive third degree burns out to 15 miles and second degree burns out to 17 miles.[45]

Blast Effects

The blast effect is also of a momentary nature, but can be so powerful as to completely collapse conventional building structures at distances up to ten miles and cause substantial damage up to 25 miles.[46] A high pressure wave

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[43] Ibid.

[44] John A. McCone, "Effects of Nuclear Weapons and the Nature of the Fallout Hazard," White House Conference on Fallout Protection, Jan. 25, 1960, p. 12.

[45] Ibid.

[46] Committee on Fallout Protection, loc. cit.

proceeds at about the speed of sound in all directions from the fireball. For a five megaton burst, the blast will destroy typical homes out to about five miles from ground zero and seriously damage them to 10 miles.[47] As a result of the pulverizing effects of the blast and the intense heat produced, a surface-burst weapon digs a huge crater and vaporizes large amounts of the displaced soil, rock and other material. For a distance of several crater radii beyond the edge of the crater, there is a region of complete and unrecognizable destruction. In the case of a large thermonuclear (MT) weapon, this can amount to 5000 feet from the point of burst. No protection can be provided within this area, except for very deep underground shelters.[48]

Radiation Effects

The nuclear radiation is of two kinds. There is an intense momentary release of prompt radiation at the time of detonation. This is quickly dissipated and can cause substantial casualties only in the area which is also devastated by blast and heat. This is called initial or prompt radiation; it effects a limited area out to less than three miles from ground zero and for convenience is described as the radiation occurring within one minute after the explosion.[49]

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[47] John A. McCone, loc. cit.

[48] U. S. Armed Forces Special Weapons Project, The Effects of Nuclear Weapons, June 1957, pp. 18-41.

[49] John A. McCone, op. cit., p. 12.

Residual radiation is the deadly type of radiation that can take millions of casualties many miles away from the detonation. This is commonly termed fallout. Residual radiation resulting from the continuing radioactivity of the several hundred fission products of the detonation, remains for days and weeks and longer.[50] When a nuclear explosion takes place at or near the surface of the earth, the intense heat of the fireball vaporizes large quantities of the earth or other material directly below.

Detonated on the surface, a five megaton, 50 percent fission bomb will produce a large crater drawing up tens of thousands of tons of earth and mixing it with the radioactive fission products of the bomb, which at the moment of explosion are equal in radioactivity to slightly over 250 million tons of radium.[51] This mixture of earth particles and fission products is widely distributed by the winds through which it falls.

Fallout

The heavier and larger pieces, including a great deal of contaminated material scoured and thrown out of the crater, will not be carried upward into the mushroom cloud but will descend directly and form a roughly circular pattern around ground zero.[52] The smaller particles, however, are carried

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[50]Committee on Fallout Protection, op. cit., p. 24.

[51]Ibid.

[52]Glen S. Waterman, An Effective Shelter Program. Thesis No. 136 for Industrial College of the Armed Forces, Washington, D. C., April 30, 1959, p. 13.

upward to a height of several miles and may spread out before they fall downwind in a leaf shaped pattern of contamination.[53] The shape, dimensions, and intensities of the fallout pattern are dependent upon many factors. Included are weather, topography, type and yield of weapon, height of burst, wind velocities and other related factors.[54]

This is the fallout from which we must be protected. It is deposited on the ground, roofs and other surfaces, sometimes like a light fall of snow. It can fall relatively evenly or it can drift under the influence of winds and air currents. For example, if the enemy should decide to attack selected industry, government and population centers as well, soon after the first attacks on military objectives, the fallout contamination might blanket large areas of the nation, including the densely populated Northeast.[55] OCDM exercises and other studies have demonstrated that virtually the entire land area of the United States would be endangered by fallout in the event of even a modest-scale nuclear attack.[56]

If it is sufficient in quantity to be dangerous it is likely that it can be seen both as a dust cloud in the air and as a coating on surfaces. The Committee on Fallout

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[53] Ibid., p. 14.

[54] U. S. Armed Forces Special Weapons Project, op. cit., pp. 410-12.

[55] Non-Military Defense, Wisconsin:--A Case Study, op. cit., p. 19.

[56] U. S. Congress, Committee on Government, Civil Defense; Twenty-First Intermediate Report, 86th Cong., 2d Sess. (Washington, D. C., Report No. 2069, 1960), p. 15.

Protection of New York state has established one hour as a point of critical time.[57]

> There is a considerable interval between the initial burst of the weapon and the arrival of fallout at locations far enough away where there are likely to be any large number of survivors. This time will vary from about one hour for the closer-in survivor locations up to 8 to 10 hours or more for the more distant locations. These intervals represent the time it takes for the material to rise in the mushroom cloud, cool off and then in significant amounts gradually sift down to earth.[58]

Fallout Danger

This fallout is dangerous because it is intensely radioactive. It radiates, alpha, beta, and gamma type energy of which alpha and beta is harmful only on direct contact with the skin. It is the X-ray gamma radiation emitted by fallout that can cause widespread death and injury unless people are protected against it. The immediate survival action required of individuals not injured by explosion effects would consist of getting behind one to three feet of earth or the equivalent, as in a sand-bagged basement corner, to reduce radiation levels exposures to tolerable levels the first few days when fallout is most intense.[59] There is simply no other solution to the fallout problem in "hot" zones than to get behind the shielding

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[57] Committee on Fallout Protection, op. cit., p. 26.

[58] Ibid.

[59] Non-Military Defense, Wisconsin:--A Case Study, loc. cit.

provided by a mass of dense material. Persons who through ignorance or through attempting to carry on with emergency activities remained above ground would become sick or would die. This report from the National Academy of Sciences--National Research Council is quoted for its brutal frankness:

> Adequate shielding is the only effective means of preventing radiation casualties. Medical prophylactic and therapeutic measures to prevent death following exposure to large doses of radiation do not presently exist.[60]

Radiation Measurement

How radiation affects people depends upon a number of circumstances including intensity, length of exposure, period of time over which dosage is absorbed, whether the total body is exposed, age, and general health. Making precise predictions of the effect of acute radiation on individuals who may be in a fallout area is presently impossible. Mr. John A. McCone, Chairman, Atomic Energy Commission has this to say about it:

> Our medical experience in treating acute radiation sickness depends upon the total dose received and upon the rate at which it is received. To put it another way, the same amount of radiation which would make one very sick if he received the dose in two days might not be immediately disabling if he received the dose gradually over the course of a couple of months.[61]

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[60] Leo A. Hoegh, "Feasibility of Fallout Shelter and Relation of Fallout Shelter," White House Conference on Fallout Protection, January 25, 1960, p. 16.

[61] John A. McCone, loc. cit.

A substantial dose absorbed over a few days will do immediate damage to body tissues by ionization. Early sickness and death will result. Over a period of about two days, for example, a dose of 200 roentgens (r) may make some people sick but none should die; a dose of 300r will make most people sick and some die; a dose of 700 in the same period will kill almost everyone exposed. The problem which takes precedence over all others in protection against fallout is, therefore, guarding against substantial doses in a short period of time. As the radiation dose increases from 250 to 800 roentgens the chances of survival change from a favorable to a very unfavorable position and no survivors can be expected from doses greater than 1000 roentgens.[62]

People can tolerate, without fatal injury or even noticeable sickness, substantial dosages of radiation if spread over long periods. For example, while a dose of 700r in a few days is fatal, appreciably larger doses can be tolerated over a period of a year without showing immediate ill effects. However, any substantial accumulated dosage, even over a long period, can be injurious in lifetime effects, inducing cancerous diseases in later life and generally shortening the life span. A preliminary report to the House Committee on Government Operations presented this analysis:

> An individual will not become incapacitated or his ability to work be seriously affected so long as his acute dose is kept below 200r. If the dose exceeds 200r over a short period, there will be radiation sickness requiring medical attention.

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[62] Ibid.

> If the short-term dose exceeds 600r over a short period, there will be radiation sickness requiring medical attention. If the short-term dose exceeds 600r, almost everyone so exposed will die. Therefore, in a fallout area, our objective is to limit the short-term radiation exposure to less than 200r and thus prevent radiation sickness.[63]

The total accumulated dose 19 hours after a surface burst with a fission yield in the megaton range might run to 1000r or more in an area roughly 20 miles across at the widest place and 100 miles long, nearly the distance from Washington to Philadelphia.[64] Closer to the point of detonation the accumulated dose would be higher. Such a radiation dose of 1000r or more received within a period of 18 hours would prove fatal to all unprotected persons within one to three weeks.[65]

While early radioactivity following a nuclear detonation is extremely high, this intensity immediately begins to decline rapidly due to the natural process of decay of the radioactive fission products. The rapid rate of decline in radioactivity proceeds at a pace that reduces the intensity level to a point where a 3000r per hour intensity one hour after blast would decline to 300r per hour after seven hours, to 30r per hour after two days and to 3r per hour after two weeks.[66]

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[63] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, 86th Cong., 2d Sess., 1960, p. 6.

[64] John A. McCone, op. cit., p. 13.

[65] Ibid.

[66] Committee on Fallout Protection, op. cit., p. 29.

Radiation Protection

Radiation easily penetrates ordinary materials such as clothing or the walls of an average frame house. However, by interposing a sufficient mass and weight of any kind of material between the fallout and a person, the intensity can be reduced to a level that is tolerable. For example, a concrete shelter in a basement, a heavier concrete enclosure in a completely exposed location above ground, or a covering of earth over a shelter can reduce the intensity by a ratio of 100 to 1 or more.[67]

Thus there are three means of reducing the intensity of the radiation--time, distance and shielding. By taking advantage of their reducing effects, and combinations of them and by getting into a shelter before fallout arrives, people can be protected against death or serious injury.[68] The vital time for protection is the first few days and of that the first hours are crucial. After a few days the problems of living with radiation are fairly easy--provided that early protection has prevented a substantial dosage.

Vulnerability of the United States

General

The first big question that must be raised about non-military defense is whether people can in fact be protected from modern nuclear weapons. Protection involves not only provisions of shelters capable of withstanding blast and

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[67] Ibid., p. 30. [68] Ibid., p. 31.

fallout effects, it includes the provisioning of food, water and medicants, besides the basic requirements for long-term habitation and sanitation. Arrangements for getting people into the shelters in response to different warnings will be a major consideration. There have been many studies conducted and expert opinions voiced concerning the value of shelter protection. It is believed appropriate that a cross section of these selected ideas should be examined in order that an objective approach can be taken:

> The Rand Study says there appears to be a number of possibilities for protective systems, and under plausible assumptions about the enemy attack and the civilian response, significant, and in some cases dramatic reductions in civilian casualties appear to be obtainable.[69]

> Mr. James H. Douglas, former Deputy Secretary of Defense, is of the opinion that if, despite our earnest efforts at the negotiating table and our defense preparations, we should nevertheless be subjected to nuclear attack, civil defense and measures for fallout protection offer the most practicable and feasible means of saving the greatest number of lives.[70]

> Maj. Gen. John Medaris on the other hand believes the concept of mass evacuation of high-density population centers and the burial of our citizenry in deep shelters would negate any kind of positive reaction to attack.[71]

> Mr. Rogers Cannell says, "Studies of many possible attacks indicate that a program providing good blast

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[69]The Rand Corporation, Report on a Study of Non-Military Defense, 1958, p. 5.

[70]James H. Douglas, "Nature of Threat and Importance of Civil Defense," White House Conference on Fallout Protection, January 25, 1960, p. 7.

[71]John B. Medaris, Countdown for Decision (New York: G. P. Putnam's Sons, 1960), p. 283 cf.

> shelters in urban areas plus fallout shelters in the rest of the nation could hold total casualties to less than 10 percent of the population."[72]

> General Lemay when questioned by the House Committee investigating civil defense indicated that he would not put a tremendous amount of money into holes in the ground to crawl into, that he would rather spend more of it on offensive weapons systems to deter the war in the first place.[73]

> Governor Hoegh when questioned by Chairman Holifield was emphatic in his opinion that in the event of nuclear attack on this country, fallout shelters offer the best single non-military defense measure for the protection of the greatest number of the people.[74]

It should be stated in the beginning that it is not believed reasonable to assume that reliable protection for all the population can be provided and the fraction of the population that can gain effective protection will depend on the uncertain nature of the enemy attack.

Casualty Estimates

It appears the belief that civil-defense is hopeless in the era of hydrogen weapons and intercontinental missiles is not true. Based on the Wisconsin Study, if the country undertakes a relatively modest program of civil-defense, there are good hopes of saving the lives of a great portion of the national population, of holding deaths to some 30 million,

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[72] Rogers Cannell, "The Strategic Role of Civil Defense," American Strategy for the Nuclear Age (New York: Doubleday & Co. Inc., 1960), p. 329.

[73] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, op. cit., p. 157.

[74] Leo A. Hoegh, op. cit., p. 8.

one-sixth of the total population, and of not being condemned to live forever in hopeless poverty.[75] Senator Young is not quite so optimistic. He says,

> The fact remains that the most optimistic estimate of the devastation of nuclear attack, despite a network of shelters, places probable death at fifty million Americans with some twenty million others sustaining injuries.[76]

Mr. Morgenstern takes a philosophical viewpoint.

> While we can show that shelters are no guarantee against loss of life, they do offer a great deal and are--apart from avoiding attack altogether--the only chance of saving people by the tens of millions. It is paradoxical; on the one hand we know that tens of millions will certainly be lost, no matter what we do; but on the other hand tens of millions who would surely also perish can be saved. Are the latter worth a great effort? or is the disaster of the loss of the others so great and unthinkable that it is not possible to conceive of an effort to preserve the lives of some?[77]

Rand Study Interpretation

The Rand Study of Non-Military Defense is believed to be one of the most authentic, reliable and latest studies that have been made public. The 168 standard metropolitan areas of the United States were regarded as target areas or the most probable targets for attack. Standard metropolitan areas containing a high concentration of industry and people are designated as critical target areas. These 70 critical

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[75] Non-Military Defense, Wisconsin:--A Case Study, op. cit., p. 18.

[76] Stephen M. Young, "Civil Defense; Billion Dollar Boondoggle," The Progressive, December 1960, p. 19.

[77] Askar Morgenstern, The Question of National Defense (New York: Random House, 1959), p. 115.

target areas were assumed to be the most probable enemy objectives, based on the estimate the return per bomb in damage and casualties would be greatest there and each of the 92 principal cities in the target areas would be struck by at least one bomb of appropriate yield.[78] It was likewise assumed that the daytime centers of population would be the aiming points within each city, since these centers coincide generally with centers of industrial concentration.

Casualty Calculations

A rough measure of the possible effectiveness of certain shelter systems is provided by some calculations of population casualties. Two possible shelter systems were considered: a system of fallout shelters only and a system of heavy, medium, and light shelters designed to provide both blast and fallout protection for the entire population.

Two hypothetical levels of enemy attack were considered. The first level was defined as the delivery on target of sufficient weapons to destroy all buildings in the 50 largest urbanized areas.

> The casualty results from this attack measured from a high of 90 million deaths to a low of 30 million. The 90 million was based on no non-military defense measures while the 30 million was based on a system of fallout protection plus a substantial tactical evacuation. Estimates in between these two figures varied as the amount of fallout protection increased and the ease of evacuation occurred. Finally, if the attack occurred after strategic evacuation, casualties might be held down to 5 million to 25 million people.[79] (See Table 1).

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[78] The Rand Corporation, op. cit., p. 12.

[79] Ibid.

TABLE 1

CALCULATED PERFORMANCE OF ALTERNATE SHELTER SYSTEMS UNDER VARIOUS ATTACKS

(Millions of U. S. Fatalities Out of 180 million population)
50-City Attack

Non-Military Defense System	30 to 60 Minutes of Warning	3 to 6 Hours of Warning
No non-military defense measures	90	90
System of fallout shelters plus arrangements for tactical evacuation	70	30
Same, after strategic evacuation	25	5

The second level attack involved the 150-city attack.

> With no non-military defense measures a completely effective 15-city attack could result in 160 million deaths in the United States. With a system of fallout shelters, and given several hours warning for evacuation, casualties might be reduced to 60 million. With a complete system of blast-and-fallout shelters, and even with only 30 to 60 minutes of warning, casualties might be held to 25 million. Less warning would, of course, increase the casualties if only a system of fallout shelters were provided, while prior strategic evacuation would result in still fewer casualties with either system.[80] (See Table 2).

A further word should be said about these hypothetical attacks. Even if an enemy had the initial capability to completely destroy 50 or 150 large cities, it is not certain that he would do so in actual war. Successful accomplishment of a large retaliatory strike by SAC, and effective operation

[80] Ibid.

TABLE 2

150-CITY ATTACK

Non-Military Defense System	30 to 60 Minutes of Warning	3 to 6 Hours of Warning
No non-military defense measures	160	160
System of fallout shelter plus arrangements for tactical evacuation	85	60
Same, after strategic evacuation	40	25
System of blast and fallout shelter plus arrangements for rapid entry	25	25
Same, after strategic evacuation	5	5

of United States air defenses might so reduce the enemy's forces that he would not be able to take out so many cities.[81] Or the war might start in one of the less premeditated ways mentioned earlier, so that the enemy's strikes would be small and uncoordinated.

Although this thesis is directed toward the personnel aspects of shelter protection it would not be complete without a consideration of the structural damage.

> Heavy attacks would of course further reduce the industrial capital that might survive for postwar use, and would increase the danger that narrow

[81] Ibid.

> bottlenecks might limit effective use of that which did survive. A 150-city attack would raise the level of destruction from about 55 percent of United States manufacturing capital to around 70 percent. Though part of United States capital would survive even the hypothetical area attack, it seems clear that some means of preserving a larger fraction would be needed to face postwar recuperation with any real hope.[82]

It is apparent from the above that a system of fallout shelters might save tens of millions of lives in either a 50-city of a 150-city attack. A complete system of blast-and-fallout shelters would, of course, be more effective. In the case of a 150-city attack, such a system would probably be needed to hold fatalities below a third of the population.[83] Both systems would be affected by the amount of warning available, and sufficient time for tactical evacuation would be particularly important for effective use of, the fallout shelters. Prior strategic evacuation, if this were possible, could make a large improvement in the performance of either system.

Post Attack Considerations

General

The next major question that must be examined in connection with non-military defense is whether the population can survive the long-term radiation levels resulting from fallout. There would be little point in sheltering people from instantaneous blast and short-run fallout effects of a nuclear attack if they emerged from their shelters into an atmosphere

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[82] *Ibid.*, p. 29.

[83] *Ibid.*

so radioactive that life could not be sustained.

> There is no doubt that the structure of society would be seriously affected. There would be tens or scores of millions dead and more millions wounded or ill: mechanisms for production, distribution and finance would be damaged and destroyed over large areas: and hordes of impoverished refugees would require food and shelter. But it does not appear, from study of disasters in human history from the Black Death through the Russian Civil War to Hiroshima and Nagasaki, that it is likely that the fabric of organized society would break down under the impact of thermonuclear attack.[84]

Long-term radiation appears particularly threatening in the light of current widespread fears about the consequences of nuclear testing which releases only a fraction of the radioactive materials that would be released in an all-out nuclear war.[85] It must be recognized that fallout protection immediately after the attack must first be adequate to hold radiation below 200 roentgens for the bulk of the population.

Long-Term Fallout Levels

The seriousness of the long-term radiation problem has been examined with the aid of fallout calculations derived from hypothetical enemy attacks. They are herein summarized:

> 1. Based on the probability that fallout would be unevenly distributed after an attack, there is raised the possibility of people living and raising food primarily in the less contaminated areas of the country.
> 2. It is estimated the rate of decay of radiation a week after an attack would be 0.2 percent of the 1-hour rate and after 90 days would be 0.01 percent.

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[84] Non-Military Defense, Wisconsin:--A Case Study, op. cit., p. 11.

[85] The Rand Corporation, op. cit., p. 15.

> 3. Countermeasures are possible to reduce the radiation that people receive. Decontamination, by washing or sweeping hard surfaces, and by plowing or scraping earth areas, can reduce residual radiation to levels 1/5 to 1/100 of those prevailing previously. Shielding buildings with earth or concrete can produce almost any attenuation desired. Once a few protected areas are available, radiation damage can be limited by rationing the number of hours per day that individuals have to work in a contaminated environment.[86]

In the case of a 50-city attack, the cumulative lifetime exposure to external total body radiation (after 90 days with countermeasures), averaged over the area of the United States, might be less than 5 roentgens.[87] Thus if short-term radiation could be held below 200 roentgens for the bulk of the population, the additional long-term problem would be comparatively small.

Medical Consequences of Radiation

The consequences of a chronic lifetime exposure to radiation are not so clear. There is evidence, however, that long-term damage can be assessed largely in terms of decreased life-span. Analysis and extrapolation of data on radiation damage to animals suggest that a reasonable though uncertain estimate of the extent of life-shortening might be something like 7 years per 1000 roentgens for children, and less for adults.[88] The Rand Study on genetic effects is summarized below:

> Genetic effects of long-term radiation are even more difficult to estimate reliably. For each

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[86] Ibid., p. 17. [87] Ibid.

[88] Ibid., p. 16.

> 50-roentgen exposure of one parent, there may be an increase of one in a thousand in the number of harmfully affected offspring as a result of dominant mutations. Recessive mutations would only rarely produce serious malformation in immediate offspring, and their effects in lowered fertility and vigor would be spread over many subsequent generations. Thus 1000 roentgens of long-term radiation to both parents might increase the chance of producing a seriously defective child from 8 percent to perhaps 12 percent.[89]

Food Availability and Production

During the reorganization phase, the bulk of the food and other consumer goods needed to sustain life would have to come from inventories or from imports rather than from domestic production. A rough estimate indicates that surviving food inventories would be sufficient at least for survival.

> The government now has a large store of agricultural products accumulated in price-support operations; stocks of wheat, corn and other grains on September 30, 1957 were sufficient to supply 2000 calories per day to 180 million people for more than 1 year.[90]

These government stocks are dispersed so as to be largely invulnerable to a city attack and are not made unfit for human consumption by fallout. The government stocks of grain cited for one year were valued at about $4 billion.[91]

Turning to the production of food after the reorganization phase, it is reasonably clear that a 50-city attack would not be a serious threat to the recuperation of United States agriculture.

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[89] Ibid.

[90] Ibid., p. 24.

[91] Ibid., p. 25.

> At present, 320 million to 340 million acres of cropland are harvested annually. But only about 20 percent are used to produce industrial crops and feed for livestock. Further, the Department of Agriculture estimates that there are about 200 million acres now in pasture, range and woodland that could be improved and planted to crops.[92]

Given the contamination levels after a 50-city attack as discussed earlier, adjustments of cropping patterns and land use should be sufficient to permit safe recuperation of agricultural output to preattack levels. This conclusion ought to be similar for a 150-city attack.

Industrial Recovery

More vulnerable than agriculture to nuclear attack is a nation's industry. Industrial buildings and equipment are even more concentrated in large cities than population. The 50 largest metropolitan areas contain about a third of the United States population but more than half of the United States manufacturing capital.[93] Thus it does not seem unreasonable to fear that destruction of the nation's capital might be so severe, and surviving capital might be so out of balance among industries, as to keep industrial production below levels adequate for recuperation. Table 3 shows the extent of industrial recovery after a 50-city attack. The calculation indicates that the status of the economy under a decade of reconstruction would be more favorable than previously feared. Thus restoration of the preattack Gross National Product (GNP) within something like a decade seems a reasonable

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[92] Ibid.

[93] Ibid., p. 26.

TABLE 3

POSSIBLE RECUPERATION OF GROSS NATIONAL PRODUCT AFTER 50-CITY ATTACK

(Percentage of preattack)

Categories of National Product	First Year After Reorganization	Eleventh Year after Reorganization	
		Consumption Policy	Investment Policy
Gross National Product	56	89	128
Consumption	58	103	137
Food	77	100	124
Housing	60	95	133
Nondurables	51	113	135
Durables (New)	0	86	216
Government	54	72	86
Investment	48	48	150

estimate.

Reorganization Problem

The reorganization phase will be complicated and acute requiring the best in ingenuity and resources. Without going into a detailed discussion of these far-reaching problems, it will be sufficient to say that given reasonable preattack preparation, these reorganization problems do not appear insuperable.[94] In particular we should not underestimate the

[94] Ibid., p. 23.

strength in an emergency of a decentralized private enterprise economy and of widespread ingenuity among the people. Accordingly, it has been assumed that extensive reorganization could be accomplished within a reasonable length of time so that economic resources that survived could be effectively used thereafter.

Post Attack Conclusions

A radioactive environment will take its toll. This fact must not be minimized. But it is also important to know that its toll is no worse than a setback of only a few decades in medical history. Mr. Cannell says, "Our lives would be as long as our grandfathers' and the proportion of stillborn children and child deformities should be no worse than thirty years ago."[95] On this basis and with the present state of medical knowledge, the post attack environment would be somewhat safer than the one most of us entered at birth.[96]

Despite the many unresolved questions about long-term fallout, it seems to be a sound generalization that long-term radiation problems are a less critical threat to the survival of a population than the central short-term problem, namely, how to protect a substantial fraction of the population from the immediate disaster of a nuclear war.

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[95] Rogers Cannell, op. cit., p. 331.

[96] Ibid.

CHAPTER II

PROBLEMS OF SHELTER PROTECTION

A formidable amount of evidence has been presented in the previous chapter that rather conclusively establishes the position that during and after a nuclear holocaust, many millions of Americans that would otherwise die can be protected and saved through the employment of a shelter program.

The question then is immediately asked, if the above premise is correct, why has not the wealthiest and most powerful nation in the world provided for the ultimate safety of its citizens? It would certainly seem out of national character, in this country where the individual's rights and human life are guaranteed by Constitutional decrees, that our governing authority has allowed this void to exist and widen in severity.

The problems of shelter protection are putting it vulgarly a "national bag of worms" that originated with the possession by the Russians of the atomic bomb in 1950 and has since expanded in scope with each succeeding technological development that perfects the military art of human eradication. The complications of shelter protection are many and range in scope from an attitude, there is nothing that can be done, to political leadership of the highest order authorizing a federal

expenditure of $20 billion to provide shelters.

Within this spectrum are such problems as attack, warning time, evacuation plans, peoples' attitudes, expenditure of funds, and many other considerations. It will be necessary to expand on these major points of conjecture in order that a broad understanding of the national civil defense problems can be attained.

Warning and Movement

General

In the event of nuclear attack the question of whether to evacuate, to run for shelter, or to do both will be uppermost in the minds of many people and especially those in critical authority.

Evacuation of Cities

Under the guidance of OCDM, most major cities have prepared evacuation plans for their population to designated areas where the supposed enemy assessment of favorable target features has been greatly reduced. The problems involved in such a course of action, however, are of considerable magnitude. Consider just one condition where the international situation has deteriorated to the point where authorities order the cities evacuated. To move from their homes, activities, and employment the millions of people in our standard metropolitan areas would throw an impossible burden upon the government for shelter, continuing food supply, water, sanitation and all the other requirements of minimum normal existence. Suppose the

enemy desired to maintain these intolerable conditions for an indefinite period where threat of attack was always persistent but had not reached the "no-recall" stage. Such a condition of alert could exist during long periods of international tension without actual attack. Essentially, the commercial and industrial life of the nation would cease.

Then, if one takes the example where the city dwellers or at least some populations have been able to effect an evacuation before their cities are leveled by nuclear bombs, it is admitted that many millions will be saved from the effects of blast. But how many will be caught out in the open trying to make an escape, and how many will die from the short-term radiation because essentially there are no shelters to evacuate to? Take the reaction to the proposal and plan by OCDM to evacuate the populace of Washington, D. C. to Virginia. The statement received by the subcommittee from the Virginia State civil-defense coordinator is typical of many replies in this respect. It states:

> The Commonwealth of Virginia has never felt that it would be feasible to consider the evacuation-reception centers because congregated facilities of magnitude that would house a large number of evacuees at rural Virginia do not exist. Therefore, the State in planning for its obligation to receive evacuees from Washington, D. C. and other target areas, has proposed to house these persons in homes. If the homes in the reception areas would have a 2-week food supply we believe that the chance of survival is greater in decentralizing the evacuees to manageable groups into homes where food supplies exist.[1]

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[1] U. S. Congress, House, Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, 86th Cong., 2d Sess. Washington, D. C., Report No. 2069, 1960, p. 18.

Only in a few spotty instances have the States and target areas been able to report fully prepared and provisional evacuation centers in being. In most cases, reception centers merely have been designated without further preparation. The action of OCDM in distributing and prepositioning its 200-bed emergency-hospital packages seems to be the extent of the preparation for evacuation reception centers. In this regard the Committee on Government Operations conducting hearings on civil-defense is of the opinion that even if the homes in the designated reception areas are opened up to evacuees from target cities, the shielding afforded by those residential structures would be of limited value in providing protection from radioactive fallout.[2]

National Policy on Evacuation

Governor Hoegh indicates the National Policy on evacuation is one which is constantly misunderstood or misrepresented. The National Plan outlines the evacuation policy in this manner:

> Governments and the public will take such action on receipt of warning as is prescribed by the Government involved:
> 1. Evacuation or Dispersal--target cities and other areas near assumed targets will, if time and conditions permit, execute plans for evacuation or dispersal to prepared reception areas.
> 3. Shelter--If time and conditions do not permit evacuation, full advantage will be taken of existing shelter, and fallout protection will be improvised.

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[2] Ibid.

3. The action to be taken is a local decision.[3]

When questioned by the subcommittee as to the present policy of OCDM with respect to evacuation and shelter, Gov. Hoegh reported that OCDM is recommending both evacuation and shelter. The decision to follow one or the other or a combination of the two is one which must be made by each local community, under current OCDM planning. Governor Hoegh noted that the Mayor of a local community is the leader of the people of that community and described the local mayor's function as follows:

> When he gets the information that there is going to be an attack upon his city, he has to make the decision, with the advice of a good staff, as to whether or not there is sufficient time to move his people away from the horror and the hell of blasts or whether or not they should take shelter.[4]

On the other side of the coin, Governor Hoegh admitted that there are few, if any, reception centers or areas prepared to the extent of having personnel assigned on a permanent basis with equipment and supplies prepositioned, and shelter provided against radiation. He said, "We are not sure our level of preparedness would ever reach this stage in view of the cost that would be involved, as well as the impracticality of setting aside large amounts of resources."[5]

Rand Study on Warning and Movement

Important work has been done by the Rand Corporation

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[3]Leo A. Hoegh, "Feasibility of Fallout Shelter and Relation of Fallout Shelter," White House Conference on Fallout Protection, Jan. 25, 1960, p. 20.

[4]Ibid., p. 18.

[5]Ibid.

in considering the problems of evacuation. They conclude that warning measured in terms of days is possible if a nuclear attack occurs as an extension of a local war, or after a period of severe international tension, or as a last resort decision by the United States.[6] Movement of a significant portion of the city population into emergency quarters in small towns and rural areas would then be possible. The prime historical example is the evacuation of children and mothers from London and other English cities in 1939 which reduced London's population by 25 to 35 percent by the time war was declared.[7]

Warning measured in hours is crucially dependent on the tactics chosen by the enemy. Directly dependent in this regard are those cities spared by the holocaust of the initial attack wave permitting them several hours of warning. Initial investigation suggests that in most cities, particularly the medium and small cities most likely to survive the first wave, an organized tactical evacuation could be carried out within 3 to 6 hours. The objective would be to move the bulk of the city population out to a shelter belt extending 20 to 50 miles from the center.[8]

Warning measured in terms of minutes is likely to be all that would be available for cities that the enemy chose to

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[6]The Rand Corporation, Report on a Study of Non-Military Defense, 1958, p. 8.

[7]Ibid., p. 8.

[8]Ibid., p. 9.

attack in his first wave, or possibly with a following salvo of ICBM's. Even in this case it appears to be technically feasible to design heavy shelters into which the bulk of the population could conceivably duck in 30 to 60 minutes--or a smaller fraction of the population if less time were available.[9]

It should be stressed at this point that the tactics chosen by an attacker, and hence the amounts of warning available to various cities, are very much a function of the posture of the Strategic Air Command (SAC) and the effectiveness of United States air defenses. Unless SAC is so sheltered and defended that an enemy would have to concentrate nearly all of his first strike on attempting to destroy SAC's capacity to retaliate, warning sufficient for tactical evacuation or even for ducking into "heavy" shelters might not be available for many cities.[10]

Evacuate or Take Cover

Many people have strong opinions on whether evacuation is considered to be a wise policy. OCDM has been many times criticized for promulgating what has been considered as an undefined, hazy, and hopelessly confused set of instructions on evacuation. This is illustrated quite vividly in a national periodical:

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[9] Ibid.

[10] Ibid.

> The increase in protest and comedy concerning the six previous national Civil Defense drills reflected a swelling, inner grumbling within the nation, a growing feeling that whether or not Civil Defense makes sense in theory, the Civil Defense we have in practice makes none. . . . In the first place, the goals of our Civil Defense planners are hidden by confusion. The average American is not quite sure whether he is expected to hide in his basement or run from his house, and neither is the OCDM.[11]

Mr. Morgenstern in his views on evacuation says:

> Evacuation is useless, even where possible, and for the most part it is quite unthinkable. It is nonsense. In the present fall-out, world of high-speed planes, and missiles, a successful and meaningful evacuation of large cities is entirely out of the question.[12]

One of the ardent foes of OCDM and a confirmed non-supporter of the shelter program, Senator Stephen M. Young has this opinion:

> The truth is the theory of evacuation in this missile age is not only silly but dangerous. Enemy submarines off our coasts could hurl rockets with nuclear warheads as much as 1500 miles inland with accuracy. We would be lucky to have three minutes warning. . . . ICBM's fired from within the Soviet Union would take fifteen to eighteen minutes to strike air fields, missile bases or other targets. It is absurd even to consider the possibilities of evacuation under these circumstances. The thermonuclear weapon, with its tremendous destructive power, and the missile with its great speed, have now made evacuation not only impractical but impossible.[13]

It is interesting to note in the report of the committee on fallout protection in New York State that evacuation time has been limited to one hour. Authorities

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[11]Stanley Meislee, "Charade of Civil Defense," Nation, June 11, 1960, p. 508.

[12]Askar Morgenstern, The Question of National Defense (New York: Random House, 1959), p. 121.

[13]Stephen M. Young, "Civil Defense; Billion Dollar Boondoggle," The Progressive, December 1960, p. 18.

there have recommended that personnel plan on having one hour after a burst to get home to shelters before the arrival of fallout.[14] The Rand Study in support of the above predicts that there would be 1 to 10 hours of delay between the explosion of bombs on targets and the arrival of airborne fallout.[15] This delay would give time for entering designated fallout shelters, strengthening them with sandbags or window closures, filling with water tanks and packing in home stocks of foods and billeting evacuees from the cities.

People's Attitude

Definition of Problem

Underlying the public attitude, which waxes and wanes with the changing climate of international events, is the growing recognition by careful observers and analysts that the United States must take its civil-defense seriously. Once the preoccupation of block wardens and civic-minded housewives, civil defense is slowly forcing its way into the highest councils of national strategy.[16]

To analyze the American attitude toward a shelter program would require more than the facilities of a Gallup Poll or the statistical results of a national referendum. This

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[14]Committee on Fallout Protection, Survival in a Nuclear Attack. A report to Governor Nelson A. Rockefeller, State of New York, February 15, 1960, p. 34.

[15]The Rand Corporation, op. cit., p. 7.

[16]U. S. Congress, House Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, p. 1.

ponderous and complex assignment has been viewed by many authorities and no two of them have come up with anything that resembles similar conclusions.

Naturally, the character, background, profession, sense of values and many other qualities temper the outlook of each individual as he attempts to define the attitude of other people. Some people look at others through rose colored glasses, and there are other analysts who look at people as being just no d--- good. However, for all the goods and the faults of these expert analysts it is possible to gain an interpretation from their conclusions which when accumulated and refined serve to point out certain strengths, weaknesses, and trends.

It is apparent from diagnosing many references published within the last two years that a number of authorities, law-makers, both military and non-military officials and others view with considerable alarm the negative attitude of the American people as it pertains to their personal safety in the event of a nuclear war. This so-called negative attitude is an all-inclusive term that bars description and is only used here to express the scope of the problem being examined. In this case scope is intended to portary the many mixed undefinable negative reactions of the average American citizen as he views the problems of civil defense.

Conflicting Views

It should be pointed out in the beginning that there are many conflicting views on civil defense and in particular

on fallout protection. There are those who believe that the weapon effects of massive nuclear attacks are so overwhelming that civil-defense is useless. Senator Young typifies followers of that particular sentiment.

> In my view no civil-defense program will adequately protect our citizenry should war strike. The survival of 180 million Americans--indeed of all mankind--depends not on civil defense but peace. It depends not on futile shelter programs inspired by a cafeman complex, but on solid, workable international agreements to disarm. . . . In the nuclear age there can be no realistic civil-defense program.[17]

It must be admitted that the negative attitude as evidenced above did respond with at least an active expression of opinion. What appears to be the main concern, however, is the alarming showing that many people fail to express any real interest. President Kennedy has summed it up very nicely:

> We are, I am afraid, in danger of losing something at the core. We are losing that Pilgrim and pioneer spirit of initiative and independence--that old fashioned Spartan devotion to "duty, honor and country". . . . We take for granted our security, our liberty, and our future--when we cannot take any one of them for granted at all.[18]

Much has been said about the public apathy of the American public toward civil-defense measures and many solid Americans have tried to excuse this indifference on grounds of failure of communications. Governor Rockefeller says that it is due to frustration and fear on the part of the American

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[17] Stephen M. Young, op. cit., p. 20.

[18] John F. Kennedy, The Strategy of Peace (New York: Harper and Brothers, 1960), p. 200.

[illegible]

people which has resulted in their failure to understand the principles of fallout protection and methods of achieving it.[19]

Many experts blame OCDM for failure to enlighten the American public. Mr. Morgenstern says:

> The people themselves are totally lacking sensible instructions as to what to do, when to do it, how to discern fallout, how to get rid of it. . . what preparations to make and how to start life again should they have survived.[20]

Chairman Holifield tuned pretty close to the real core of the issue expresses it this way.

> No one wants to face the problem of civil-defense because it is a tremendous problem, and this committee for over four years has been pointing out what the problem of civil-defense is in an effort to educate the American people as to the horrors of nuclear war.[21]

It is only fair at this time to point out that the Committee on Government Operations praised OCDM for its activities in the educational field and stated that, "Governor Hoegh has acted with commendable zeal and energy to 'sell' civil defense to the American people."[22] Likewise, Governor Rockefeller's confidence in the attitude of the American people met with severe reverses when the New York State Legislature failed to pass but a token of the shelter program advanced by

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[19]Nelson A. Rockefeller, "Need of Reliable Fallout Protection," White House Conference on Fallout Protection, January 25, 1960, p. 24.

[20]Askar Morgenstern, op. cit., p. 331.

[21]U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, 86th Cong., 2d Sess., 1960, p. 6.

[22]U. S. Congress, House Committee on Government Operations, Civil Defense, op. cit., p. 2.

the Committee on Fallout Protection.

A Cross Section Analysis

It is believed appropriate that a cross section of people's attitudes and reflections on the shelter program be presented to permit a broader understanding. A recent editorial in a Madison, Wisconsin, newspaper put it that the average citizen feels the bomb is too big to fight and Dr. Ralph Lapp says he has concluded that there is a deep-rooted feeling that there is no way to escape death from fallout.[23] This attitude is expressed by many who feel that life would not be worth living following the aftermaths of nuclear destruction. This same feeling is expressed in a different way by those people who accept the Finite Deterrence view embodied in the Air Force concept of SAC.[24] These people see no reason for programs to protect people and property, because they think it is not feasible to protect either people or property. These people often argue that it does not matter whether one dies immediately from blast, heat, or radiation or dies later from the effects of radioactivity, disease, or starvation--as long as one is going to die.[25]

There are certain authorities that conclude for all the

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[23] Non-Military Defense, Wisconsin:--A Case Study, ed. William K. Chipman, Proceedings of A Conference at The Wisconsin Center, University of Wisconsin, Madison, October 1-3, 1959, p. 6.

[24] Herman Khan, On Thermonuclear War (Princeton: University Press, 1960), p. 3.

[25] Herman Khan, op. cit., p. 4.

educational media, people just do not understand the protective features of a shelter program. This is expressed in the following:

> We intend to see that by talks and by every mass media known to man, we bring the substance of the Rhebhausen (New York Shelter Program) Report to every citizen of the state, the simple facts that three to four times as many people will be killed from fallout as from blast and thermal effects, and that most of the fallout victims can be saved. It's perfectly amazing how few people really understand these two simple facts. I have a strong feeling personally that when the women understand that their children can be saved, if they really understand this question, then no one needs to worry about getting this job done; I think it can be done easily then and naturally.[26]

Some people do not wish it known that they have constructed a shelter because of their concern over the world situation or because they do not want their neighbors to know it exists. There seems to be a kind of a shame on the part of people in having an underground shelter or it may be a fear that their neighbors will rush in and take it away from them. Chairman Holifield of the Committee on Government Operations has an interpretation for this attitude:

> We have found that there are people who do not want it disclosed. They want to be certain that they have the shelter for themselves. They do not want to make it public knowledge and, therefore, have everyone in the neighborhood rush in and take over. A few years ago it used to be a matter of shame. They were fearful of being known as eccentrics. I think that is being overcome and I think people now look at it more as a patriotic service or duty to construct one of these.[27]

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[26] Non-Military Defense, Wisconsin--A Case Study, op. cit., p. 24.

[27] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, op. cit., p. 48.

Relationship of Governmental Responsibility

Some figures in government place the blame on the people pointing out that governments can take no substantial steps while the population remains apathetic toward non-military defense. On the other hand other observers believe that the population will remain apathetic until government has given strong leadership. This view was put forth by a member of Congress who stated that, "The Congress is not going to shove something down the throats of the people that they are not interested in. If you did, the members of Congress would not be here very long."[28]

Probably one of the most important lessons learned in the past years is that people, if left to their own motivations for self-protection will do nothing. A report in a national periodical says that, "Public opinion studies show that less than 10 percent of the population will build shelters or take other preparatory measures against threatened disaster."[29] Such authorities as Charles E. Fritz of the NAS-NRC Disaster Research Group implies that greater action on the part of government is needed in civil-defense protection. He says:

> We must stop thinking of American society as if it were simply a collection of individuals or families who are individually responsible for the defense of the homeland. The realistic unit of administration and management in a nuclear attack is the nation as a whole.[30]

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[28] Non-Military Defense, Wisconsin--A Case Study, op. cit., p. 6.

[29] David Allison, "Fallout Shelters at Once," Architectural Forum, February 1961, p. 126.

[30] Ibid.

Whatever the present reaction of the public to effective programs for non-military defense, it is very likely that after a frightening crisis had occurred the public would not only demand a national shelter program, but would be highly critical of the government for not having taken the necessary action. Consider a crisis over Berlin or an expanding war in Laos where United States and Russia were unable to reach an international agreement. The lesson appears to be that the American People, who have not faced the threat of continental hostilities since 1815, may not show much interest now in non-military defense, simply because they have not given it much thought or because they may in some cases feel it to be hopeless.

It is difficult not to conclude that our population would be receptive, on the whole, to proposals for a serious program of non-military defense, provided it were advanced by governmental leaders at the highest level. Public resentment would probably be profound were a crisis to drive home the fact that the nation lay nearly naked to enemy attack. CIA Chief Allen Dulles has warned:

> If they succeed and we fail, it will only be because of our complacency--and because they have devoted a far greater share of their power, skill, and resources to our destruction than we have been willing to dedicate to our own preservation.[31]

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[31] John F. Kennedy, op. cit., p. 198.

Status of Shelter Program

A Bird's-Eye View

The status of non-military defense based on an evaluation of the American attitude is one that concerns mainly responsible government officials. It is a debatable question at this time how much of this authoritarian concern for shelter protection has been transformed into concrete action. While it is not possible to document this view, it is probable that if an attack were to come during 1961, with only a few hours warning, existing civil defense preparations throughout the United States would not reduce civilian deaths to a substantial degree. It is apparent that the bulk of the funds so far invested in non-military defense have been absorbed by administration, research, and planning which is most necessary, but which has not yet generated a substantial capability for saving life.[32]

New York is so far the only state to have given serious consideration to a program of fallout shelter. In a report submitted to Governor Rockefeller early in 1960 a Special Task Force concluded that a very high degree of protection from fallout could be achieved within a reasonably short time and at a cost within reach of the people of the state. The Task Force recommended:

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[32] Non-Military Defense, Wisconsin--A Case Study, op. cit., p. 4.

> That laws be passed requiring all new construction within the State to provide shielding from fallout up to a minimum specified date to provide fallout protection for their occupants. The report also recommended that financial incentives for shelter construction be provided to homeowners, to include, among others, the exclusion of shelter improvements from local real estate taxes.[33]

It is apparent that either the people, or the legislators or both did not feel the urgency of such a program for the proposed bill to implement these features failed to gain the necessary support to be enacted into law.

United States Congress, Civil Defense Hearings

Although many studies have been accomplished in regard to the various aspects of civil defense it is doubtful whether any one single group in this country is better acquainted with the overall problems than the Committee on Government Operations which chaired by Representative Chet Holifield conducted hearings on civil defense during the spring of 1960. The opinion of this committee is as good an analysis of the present status of civil defense as can be attained. Chairman Holifield said:

> Those who examine the material will find, I believe, that civil defense throughout the country as a whole is in a deplorable state. . . . Lack of progress applies to civil defense generally, but in the case of shelters particularly, it is evident, to me at least, that the national shelter policy has been a failure. My concept of shelter protection requires more than education and exhortation. It requires a program of construction.[34]

The Committee reported that it had gathered information from 35 states and 66 cities in conducting an evaluation of the

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[33] Ibid., p. 25.

[34] U. S. Congress, House Committee on Government Operations, Civil Defense, Hearings, op. cit., p. 3.

shelter program.[35] The states reported:

1. 1665 home fallout shelters constructed
2. 14 public buildings modified structurally to provide for shelters
3. 5 underground civil defense control centers constructed
4. 8 underground dual-purpose control centers constructed
5. 4 public schools modified for fallout protection plus one planned

The cities reported:

1. 356 home fallout shelters constructed
2. 9 public buildings modified structurally to provide for shelters
3. 9 underground civil defense control centers constructed
4. 7 underground dual-purpose control centers constructed
5. 1 public school modified for fallout protection plus one planned

Although the figures shown above are lacking in complete accuracy, it is evident that shelter construction within private homes, public buildings and schools is proceeding at an unacceptably slow rate. There is considerable evidence that OCDM has made extensive effort through the media of radio, TV, press and other communication programs to bring home to the American public the dire need for radioactive protection shelters.[36] Whether the objectives of this program have been accomplished is debatable. Governor Hoegh has outlined OCDM's policy in this regard:

> Information and education programs are vital to the shelter policy. The first need for action by the individual citizen is knowledge. Americans must know the "why" and then the "how" of shelter protection to be motivated to protect their families.[37]

On the other hand Governor Orville Freeman of Minnesota takes a

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[35] Ibid., p. 2.

[36] Ibid., p. 42.

[37] Ibid., p. 9.

different viewpoint:

> The announcement of the national policy on shelters by Governor Hoegh in 1958, while gratifying to me, is inadequate in that the means to carry out the monumental educational program did not exist at that time, nor does it at the present. . . . It is not enough that pamphlets are distributed, television and radio programs and newspaper articles appear supporting such a program. The Government itself must act and until our State legislatures see shelters incorporated in new Federal buildings and existing Federal buildings to provide full protection, they are unwilling to appropriate State money for this purpose.[38]

In the 2 years since announcement of the "National Shelter Plan", few tangible achievements can be found. There is no plan in the sense of a schedule of performance in regard to the construction of shelters or no method to measure accomplishments. The Committee is of the opinion that despite the expenditure of considerable funds by OCDM in an education and information program comparatively few shelters of any description have been constructed in the United States.[39]

The construction of shelters within both new and existing Federal buildings has progressed at a relatively slow rate. Based on the national shelter policy, shelter construction is provided in the following manner according to Governor Hoegh:

> 1. The Administration provides leadership and example by incorporating fallout shelters in appropriate new Federal buildings.
> 2. The Administration endeavors to incorporate

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[38] Ibid., p. 49.

[39] U. S. Congress, House Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, op. cit., p. 7.

> fallout shelters in existing Federal buildings to provide leadership and set an example for the owners of existing commercial and industrial buildings.[40]

OCDM efforts to set an example for the Nation as a whole by incorporating fallout shelter in existing and new Federal buildings thus far have met with failure. To date request for funds for fallout shelters was included for only one project in the fiscal year budget estimates in the new building category.[41] For existing buildings the GSA has studied 10 Federal buildings but no modifications have been undertaken.[42] Governor Hoegh's reply to this was that to implement the national shelter policy in fiscal years 1959 and 1960, the President has asked for $29,120,000 and only received $10,284,000.[43]

In defense of OCDM's apparent failure to stimulate shelter construction, Governor Hoegh contended in his testimony to the subcommittee that considerable shelter space for protection against fallout exists in the United States. Despite a lack of specific data on the number of fallout shelters actually constructed, he maintained that sufficient information was available to enable him to make a firm estimate on the total shelter spaces presently existing. His

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[40] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, op. cit., p. 9.

[41] U. S. Congress, House Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, op. cit., p. 9.

[42] Ibid.

[43] U. S. Congress, House Committee on Government Operations, Civil Defense, Hearings, loc. cit.

estimate was that over 25 percent of the United States population could be accommodated by existing shelter spaces. Governor Hoegh stated before the Committee:

> Based upon the sampling surveys we have made in various communities, based upon the information which we have about those existing facilities which have a potential factor of sufficient magnitude to protect people from fallout and, secondly, based upon our own observations and on our information from industries and from citizens and from local and State directors, I am confident that as of today we have shelter spaces of sufficient protection factor for 25 percent of the people in this Nation.[44]

The above estimate was strongly contested by the Committee which considered it unrepresentative of the existing conditions. It stated, "Governor Hoegh's oft-repeated estimate that 25 percent of the United States population can be sheltered in existing structures is not borne out by the pilot surveys, on which he stated his estimate was based."[45]

Supplementary Problems

The main supporting considerations involved in a shelter program are those requirements of food, water, medical, sanitation, and radiation monitoring equipment which are vitally needed to sustain life in a confined condition. It is not difficult to assess the lack of value of a well constructed shelter that is not equipped with required

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[44] Ibid., p. 57.

[45] U. S. Congress, House Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, op. cit., p. 15.

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supporting provisions. It would likewise not be difficult to imagine the hardships and radiation risks that occupants of this shelter would be subjected to if it were necessary for them to leave its protection for long periods of time in search of food, water and medication. There has been established the theory that sufficient food, water, and other necessities of life would be available after an indeterminate period of shelter living when the radiation level has lowered to permit outdoor habitation. It is obvious then that the value of these shelters are really only as high as they are properly equipped.

It is not the intention of this thesis to consider these related factors as part of the evaluation of the shelter program. However, it is likewise impractical to consider a shelter program without acknowledging that unless these supplementary provisions are acquired by the individual or government, there would be little wisdom in the promotion of shelter protection.

Thus in order that the goal of this thesis is not dragged under by its many attachments, a detailed analysis of these considerations will be omitted. This action is taken with due knowledge of the problem at hand which appears national in scope:

> The national master plan for civil defense which this subcommittee recommended for adoption in 1956 was based on the key measure of shelter protection from the blast, thermal and radiation effects of nuclear weapons. . . . Despite the general acceptance of the basic requirement for shelter protection,

> it is apparent to the subcommittee that civil-defense planning for postattack recovery and rehabilitation is being prosecuted at every level today with a virtual disregard for this key requirement.[46]

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[46] Ibid., p. 36.

CHAPTER III

A PRACTICAL SHELTER PROGRAM

Shelter Types and Characteristics

General

To determine an adequate shelter program requires a consideration of three major points. These points being fallout, blast and a combination of fallout and blast protection. In the past several years repeated studies have confirmed the national necessity for shelter but no decision to initiate the costly new program has as yet been made.

The principal requirement for fallout protection is that there be a mass of material between the shelter occupants and the radioactive fallout.[1] The more dense the materials, the more effective the protection. Of the dense materials, earth is, of course, the most readily available and the cheapest. An underground shelter is shielded by the earth around it. An above-ground shelter covered with earth provides good shielding. Other construction materials, such as poured concrete, concrete block, brick, clay tile filled

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[1]Leo A. Hoegh, "Feasibility of Fallout Shelter and Relation of Fallout Shelter," White House Conference on Fallout Protection, January 25, 1960, p. 16.

with sand, and steel, fiberglass-reinforced plastics, and treated wood, covered with earth, are relatively inexpensive and provide excellent shielding from fallout.[2]

Fallout Shelter

Adequate fallout shelter can be constructed at from $25 to $150 per person. The lowest figure $25, applies to "do-it-yourself" family shelters in basements. Where separate independent structures are required for fallout shelter the cost may run $150 per person or more. The cost for most shelters will fall between these two extremes. Cost tends to be lower when the shelter can be incorporated in new buildings at the time of design. There probably will be large areas where homes and home basements will provide adequate fallout protection. Governor Hoegh emphasizes:

> All families should provide themselves with the fallout protection recommended in OCDM family fallout shelter manual. With this standard of protection, all our people who survive the initial blast and thermal effects could survive the effects of fallout in a nuclear war.[3]

Fallout shelters appear to be a better investment than blast shelters for a number of reasons:

1. The lethal fallout area is expected to be much larger than the blast damage area;
2. Fallout protection is more easily and cheaply provided, since at least 25 percent of the population can be sheltered in existing structures, with some modification;

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[2] Ibid.

[3] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, 86th Cong., 2d Sess., Washington, D. C., 1960, p. 8.

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3. Blast shelters can be overcome by saturation attacks;

4. Blast shelters, to be effective, require warning and this can not be guaranteed against missile attack; fallout shelter, on the other hand, would not be required until after the nuclear weapon had landed;

5. There is always the possibility, in the distant future, that concentrated areas can be defended against missile or bomber attack, but there is no such prospect for defense against shifting radioactive fallout.

If first priority is given to fallout shelter, maximum use can be made of existing structures. Attention should be focused on family-type shelters with attendant problems of administration, stocking, maintenance and land acquisition. It should not be overlooked that some community shelters will be required, particularly in areas where the predominant type of construction does not include basements.

Improvised fallout shelters, even if only capable of reducing radiation of 1/20 to 1/30 of the radiation outside, could have a significant effect in reducing casualties among people outside the areas of blast damage.[4] There seem to be many possibilities of identifying and preparing such shelters in existing buildings in small cities and towns. Even buildings whose structural characteristics provide smaller attenuation factors could be quite useful, with arrangements for washing down or sweeping the roofs and surrounding areas.

An essential element in the use of such improvised

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[4] The Rand Corporation, Report on a Study of Non-Military Defense, Report 322-RC, 1958, p. 5.

fallout shelters would be radiation meters.[5] The meters would indicate how long outside activity could continue (until heavy fallout arrived), would guide immediate decontamination work, would show when it was safe to emerge from the shelters, and would continue to be needed in postwar organization.

An often-neglected possibility is the use of suitably located mines for both fallout and blast protection. Mines for low-priced ores, such as limestone, sandstone, rock salt, and gypsum, typically consist of a regular pattern of rooms with level floors and 10 to 12 foot ceilings, completely self supporting and dry.[6] Such mines could be provided with water tanks, latrines, utilities, and some air-conditioning equipment, and could be stocked with a bedroll for each person, cold processed rations, and some medical supplies.

Blast Shelter

Despite the clearcut superiority of fallout shelter as a general proposition, there are certain areas which will probably suffer extensively from blast damage and where fallout shelter would probably be of little value. Tucson, Arizona ringed by missile bases and cities with high concentrations of population are prime examples. Studies have shown that in the event of a population-oriented attack, or even a mixed population and military attack, a large percent of the population could be saved by blast shelter.

An engineering study of a system of deep rock shelters

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[5] Ibid.

[6] Ibid., p. 6.

under Manhattan Island for 4 million people indicated a cost of $500 to $700 per person, depending largely on habitability standards.[7] The shelters were to be excavated 800 feet below the surface, using conventional excavation and mining techniques. Some 97 entrances were planned and distributed according to population, so that every point in Manhattan was within 5 to 10 minutes walking distance of an entrance.[8]

A wide range of shelter designs providing blast protection of 50 to 200 psi seems to be possible using conventional construction techniques--shallow underground location, reinforced concrete or corrugated--steel material and heavy air-tight blast doors.

A Consideration of Proposed Shelters

An Immediate Program--Rand

A non-military defense program costing $200 million to $300 million could probably be accomplished in a relatively short time by concentrating on a system of improvised fallout shelters outside the large cities.[9] Such a program would include the following elements: identification of existing buildings in small cities and towns that provide high attenuation factors against fallout; provision of sandbags, water tanks, and other minimal supplies needed to convert these buildings into operating fallout shelters for short-term occupancy; widespread distribution of radiation meters; preparations to take advantage

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[7] Ibid., p. 7.

[8] Ibid.

[9] Ibid., p. 33.

of partial strategic evacuation, in case international tension should make it desirable; planning and practice of tactical evacuation of cities for which fallout accommodations are available in a belt 20 to 50 miles away from the center.[10]

It is estimated that none of these actions would be very expensive, and the resulting system might cover only part of the population, yet in appropriate circumstances they might save millions of lives.

A Delayed Program--Stanford Research Institute

Studies at Stanford Research Institute have indicated that effective shelter systems can be designed for costs which are small in comparison with the country's total defense budget.

> This program would involve construction of special fallout shelters. In this case, the government would bear the cost of the shelters and the emergency supplies in addition to the expense of warning, monitoring and the like. A program of this scope would cost in the order of $5 billion per year if completed in six years. This is equivalent to an annual cost of about $30 per person.[11]

It is estimated this program could add 60 to 90 million survivors over and above the number who would survive with no program. It would provide adequate fallout protection in any attack on the United States at least through the 1960's.[12] However, in attacks against population centers this program could not prevent millions of blast casualties.

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[10] Ibid.

[11] Advisory Committee on Civil Defense of The National Academy of Sciences and The National Research Council, The Adequacy of Government Research Programs in Non-military Defense, 1958, p. 33.

[12] Ibid.

An extended program would provide maximum shelter against immediate blast effects in metropolitan areas plus fallout shelters elsewhere. If this program were to be completed in eight years, it would cost about $5 billion per year for the blast shelter portion of the program, but the fallout portion of the program would cost less because fallout shelters would no longer be needed in cities.[13] This program would add approximately 80 million more survivors than would be saved by a fallout shelter program in the case of a heavy attack against military and population targets.

A State Program--Rockefeller Proposal for New York State

One of the most far reaching shelter programs proposed to date are included in the New York State program. Its principle points are outlined below:

1. The protection program should be centered on the home and family.

2. Civil defense planning should be based on getting as many individuals as possible back to their own homes within 1 hour after the blast.

3. Home protection should be supplemented with reasonable protection at places of business and industry, schools and other publicly owned buildings, and other occupied non-residential structures.

4. Individual shelter areas should maintain inventories of emergency supplies and equipment for 2 weeks survival without outside help.

5. Require existing residences to provide minimum fallout protection for all regular occupants by no later than July 1, 1963.

6. Require new residences of all types under construction after Jan. 1, 1962 to include minimum fallout protection.

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[13] Ibid.

7. Require existing business, commercial, and industrial premises to have by July 1, 1963, minimum protection available for employees who could not be expected to reach their homes within 1 hour after attack.

8. Enact tax relief measures to (a) exclude the cost of shelter construction from local assessment for tax purposes, up to a maximum of $100 per planned occupant, (b) exclude the cost of shelter construction on from any applicable State tax based on the cost of real property; and (c) permit deduction of shelter construction costs from taxable income from New York State income tax purposes, up to a maximum of $100 per planned occupant.[14]

The report of the New York State committee estimated that home shelters for all the people of the State would cost an average of $50 to $75 per person sheltered. Minimum survival supplies and equipment for 2 weeks were estimated to cost an additional $15 to $25 per person.

Budget Requirements

The need for adequate funds to fulfill all the requirements of civil defense is recognized. Whatever the reasons for national reluctance to undertake a serious program of nonmilitary defense, it is indisputable that the program as viewed across the nation has not progressed much beyond the level of planning. Table 4 shows funds appropriated to date for nonmilitary defense. Table 5 shows a comparison of appropriations and a breakdown of expenditures.

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[14] U. S. Congress, House Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, 86th Cong., 2d Sess., Washington, D. C., Report No. 2069, 1960, pp. 22-23.

TABLE 4

FEDERAL FUNDS FOR NON-MILITARY DEFENSE

Fiscal Year	Budget Requests	Funds Approp.	Approps. as % of Requests	National Defense Expend.	% of Nat'l. Defense Expend.
1951	403M	32M	8	33,900M	0.11%
1952	537	77	14	46,400	0.17
1953	602	44	7	49,300	0.09
1954	153	49	32	41,200	0.12
1955	88	50	57	39,100	0.13
1956	78	71	91	40,300	0.18
1957	125	98	78	44,300	0.22
1958	132	42	32	44,300	0.09
1959	76	45	59		
1960		52			
1961		60			

TABLE 5

A COMPARISON OF APPROPRIATIONS

	1960 Actual	1961 Actual	1962 Estimate
Salaries and Expenses	$29,535,000	$24,700,000	$30,000,000
Federal Contributions	10,000,000	16,000,000	22,000,000
Emergency Supplies and Equipment	6,950,000	9,175,000	36,000,000
Research and Development	4,000,000	4,000,000	4,500,000
Federal Agencies	----	6,250,000	8,700,000
Construction and Facilities	2,400,000	----	2,500,000
Totals	$52,885,000	$60,125,000	$104,200,000

In direct relation to the shelter program, the Federal Government through appropriated funds has instructed people in protective measures, conducted a sample survey of existing shelter capabilities, accelerated shelter research, and constructed prototype shelters for example and guidance. As can be analyzed from the above very little completed hardware in any form has been obtained.

The OCDM Budget has requested $104,200,000 for fiscal year 1962 and represents an increase of $44,075,000 over fiscal 1961 appropriations.[15] The major portion of the increase is for procurement for the civil defense medical stockpile. Twelve million dollars is for continuing implementation of Public Law 606. Under this law, Federal funds are made available to States and local governments for matching the costs of civil defense personnel and administration.

Prudent concern for the protection of the civilian population from hazards in a nuclear world makes it necessary to recommend increases for 1962 in appropriations for civil defense. Under this policy the Congress has been urged to provide funds for inclusion of fallout shelters in appropriate new and existing Federal buildings. Funds and appropriate legislation are being requested to accelerate these activities in 1962. In addition legislation is being proposed to require appropriate fallout shelters in certain new private construction where the Federal Government provides some form of financial

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[15]Office of Civil and Defense Mobilization, Information Bulletin, Battle Creek, Michigan, No. 275, February 3, 1961, p. 2.

assistance. This legislation will also provide for a 1-year program of grants to States to assist in the construction of fallout protection shelters in selected State buildings. Upon the enactment of this legislation, supplemental appropriations will be required. The proposed shelter legislation carries no request for funds. These would be requested in supplemental appropriations.

In the last few years the United States government has been spending between $50 million and $100 million a year on non-military defense measures discussed above. However, a good deal could probably be done with expenditures as small as two to three times recent annual budgets, particularly by taking advantage of existing assets.

Frank B. Ellis, the new Director of the OCDM, is pressing a demand for a program almost tripled in size. He has indicated an adherence to the demand that the civil defense program be expanded to $300,000,000.[16]

Mr. Ellis argues that the Pentagon's newly announced emphasis on a strategic missile and bomber force able to "ride out" a first enemy blow requires corresponding high-level attention to protection of civil government centers and the civilian population.

With added outlays of $200,000,000 a year, he declares, enough fallout shelter and medical and food supplies can be mustered to save at least 30,000,000 lives in case of all-out-

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[16] The New York Times, "Wide Aims Pushed For Civil Defense," April 12, 1961, p. 12.

nuclear attack.[17]

Mr. Morgenstern's opinion is similar.

> Perhaps a simple shelter program would cost thirty to fifty billion dollars spread over some years. . . . What does this matter when the alternative is to lose some additional fifty million people or even more? . . . No one can doubt that the American economy can produce enough cement, steam shovels, bulldozers, employ sufficiently large labor forces, and make the necessary organizational effort to procure at least fall-out shelters in a really short time.[18]

Side Effects

There are obviously, other effects to be gained by adopting a nation-wide shelter program. Though these are relatively unimportant when considering the criticality of survival, the indirect benefits are worthy of review.

There has been adopted a fairly strong opinion by many authorities that fallout shelters built on a national scale would influence the pattern of a possible Soviet attack and weaken its attack position. The Rand Study concludes:

> If fallout shelters were built outside major target cities and evacuation planned in advance, Soviet planners would be obliged to reckon on a much larger commitment of second-salvo missiles or aircraft to destroy all of the war-making capability of this country which might make the attack less attractive to them. On the other hand without effective non-military defense in this country, the Soviets might be more tempted to attack population centers, than if they knew that there existed well organized schemes for evacuation of city populations to fallout shelters. A fairly modest missile or aircraft effort might destroy so large a proportion of our population, if they are

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[17] Ibid.

[18] Askar Morgenstern, The Question of National Defense (New York: Random House, 1959), p. 119.

[illegible]

[illegible]

[illegible]

> unprotected that the Country might neither retain the will nor the ability to fight.[19]

Mr. Rogers Cannell supports the above opinion and estimates that we could lose with our limited civil protection about 25 percent of our population. He says:

> Should our damaged forces strike back from an attack they would be assaulting an enemy whose population has been trained in civil defense and has adequate warning to evacuate and make fallout shelters. Any attack returned to the United States from Russia's damaged forces would probably be aimed at our cities and industry, since our retaliatory bases would be empty. Under these circumstances our chances of survival would depend upon just how many of our people we could protect from the attack by evacuation and hastily built fallout shelters. With Americans inadequately informed or ill-prepared to react properly in such a situation, it is questionable whether we would dare to launch a massive retaliation considering the vulnerability of our people.[20]

A speedy and large-scale shelter construction program could upset the strategic balance existing at the time of the initiation of the program in favor of the shelter-building country. Its effects are the same as those of any other weapons crash program. Applying this principle to the shelter program, it is easy to see that it would take very long to build shelters against blast, but not so very long to get fallout shelters. A country engaging in a large shelter program is literally "digging in" and may well give the impression

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[19] Non-Military Defense, Wisconsin--A Case Study, op. cit., p. 18.

[20] Rogers Cannell, "The Strategic Role of Civil Defense," American Strategy for the Nuclear Age, ed. Walter F. Hahn, John C. Neff (New York: Doubleday and Company Inc., 1960), p. 327.

that it is getting ready to attack.[21] This interpretation will be unavoidable, no matter what peaceful intentions are officially declared at that time. A shelter program is a major change in the balance between the two countries and therefore cannot be viewed with equanimity by the enemy.

Active defense and non-military defense mutually support each other. The mere existence of active-defense forces helps to limit civilian casualties by compelling the enemy to launch larger raids, which are more likely to be detected and thus provide warning. Moreover, active defense may cause further diversion of weapons from city targets to air-defense targets and to the task of penetrating SAC targets.

On the other hand, non-military defense measures contribute most importantly to active defense by making attainable levels of performance worth while. Rand says:

> An effective non-military defense system could sharply reduce the number of casualties per enemy bomb, and thus give an active defense system capable of screening out a substantial fraction of the enemy weapons, even if not all of them a more important role in the national defense. Non-military defense also helps active defense in more technical ways--such as by making the enemy attempt more accurate (and more easily disturbed) delivery systems, and by permitting the defensive use of larger atomic weapons at closer range.[22]

There has been established within the framework of this thesis the conclusion that Soviet foreign policy will not be

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[21] Askar Morgenstern, The Question of National Defense (New York: Random House, 1959), p. 130.

[22] The Rand Corporation, Report on a Study of Non-Military Defense, 1958, p. 39.

deterred from a posture of aggressive international moves designed to probe the weaknesses of the foreign policy of mainly the United States and generally the nations of the Free World. In the years ahead, willingness to make foreign policy decisions carrying a risk of war may be important to meet major Soviet challenges that threaten United States security. The more effective the defense of civilian society, the easier it will be for United States leaders to make such decisions. Deterrence of extremely provocative enemy behavior other than a direct attack on the United States might thus be maintained as national policy. The Rand Study is of the opinion that if non-military defense measures caused Soviet leaders to believe that aggressive moves would meet firm resistance, they would be less likely to take such provocative actions.[23] Deterrence of aggressions against countries other than the United States might also be accomplished by strengthening United States capability to meet limited aggression in a limited way. Former Secretary of State Herter has emphasized the direct relationship that exists between a fallout shelter program and the successful conduct of foreign policy.[24] Former Deputy Secretary of Defense James H. Douglas stated:

> I am sure that a strong civil defense program will be an increasingly important element of our deterrent posture. Better protection for our civil population will strengthen the conviction and credibility of our firm policy to meet aggression with force.[25]

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[23] Ibid., p. 1.

[24] Special Committee on Civil Defense of the Governor's Council, "Statement," White House Conference on Fallout Protection, January 25, 1960, p. 3.

[25] James H. Douglas, "Nature of Threat and Importance of Civil Defense," White House Conference on Fallout Protection, January 25, 1960, p. 10.

CHAPTER IV

THE ROLE OF GOVERNMENT

National Policy

The National Plan for Civil Defense and Defense Mobilization was established by Reorganization Plan Number 1 of 1958 and promulgated by President Eisenhower.

Within the framework of this plan was established the Office of Civil and Defense Mobilization, the Director of which was assigned the responsibility to manage and direct the civil defense and defense mobilization programs of the United States.

The National Plan itself is a statement of principles, responsibilities, requirements and broad courses of action, which defines that the responsibility for civil defense shall be vested jointly in the Federal Government, the several states and their political subdivisions. It was apparent the intentions of Congress to assign to the protection of the population all levels of government, federal, state, and local.[1]

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[1]Nelson A. Rockefeller, "Need for State and Local Initiative in Stimulating Individual Action," White House Conference on Fallout Protection, Washington, D. C., January 25, 1960, p. 23.

Functions of Office of Civil and Defense Mobilization

The Federal Civil Defense Agency

The Office of Civil and Defense Mobilization (OCDM), was created in 1958 by combining the old offices of the Federal Civil Defense Agency (FCDA) and Office of Defense Mobilization (ODM).[2]

Previously the FCDA had been created in 1951 on recommendations from the Defense Department's Office of Civil Defense Planning by Civil Defense Act, Public Law 920.[3] This law provided in part that the responsibility for civil defense should be vested primarily in the several states and their political sub-divisions. The Federal government was to provide necessary coordination and guidance as authorized.

In this situation, where the primary responsibility was on the states and cities, the Federal government carried on numerous programs to advance Federal preparedness activities and to assist the states in theirs. Samples of the activities to encourage Federal preparedness included a stockpile program to place needed materials in areas where they would be available, pre-positioning of hospitals, and research projects to discover and evaluate civil defense protection.[4] FCDA developed the attack assumptions on which our civil defense protection would

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[2] Non Military Defense, Wisconsin--A Case Study, ed. William K. Chipman, Proceedings of a Conference at The Wisconsin Center, University of Wisconsin, Madison, October 1-3, 1959, p. 143.

[3] Ibid.

[4] Ibid.

be based. It set up the national warning system which was designed to give immediate warning to points in the system.[5]

Creation of Office of Civil and Defense Mobilization

Public Law 85-606 was created in 1958 and in the same year the President in his Reorganization Plan Number 1 combined the ODM and FCDA into the present OCDM.[6] The changes resulting from this legislation assigned an increased role and responsibility to the Federal government in the area of civil defense. Instead of resting primarily on the states and sub-divisions, the responsibility for civil defense is now vested jointly in the Federal government and the several states and their sub-divisions. This is brought out by the fact that to the former Federal responsibility for coordination, guidance, and assistance was added a fourth responsibility, namely, that for direction.[7] The agency was likewise given authority to expand its contributions program and make funds available to share state and local personnel and administrative expenses.

The National Plan for Civil Defense and Defense Mobilization

Under the merger Governor Hoegh became the first Director of OCDM and was responsible for promulgation of the National Plan for Civil Defense and Defense Mobilization which was published in October of 1958. This is the basic civil

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[5] Ibid.

[6] U. S. Office of Civil and Defense Mobilization, National Plan for Civil Defense and Defense Mobilization (Washington, D. C.: Government Printing Office, 1958), p. iii.

[7] Ibid., p. 3.

defense plan which serves as an assembly of fundamental policies, responsibilities, and procedures which are given expression in the form of operating plans and detailed action measures. It has been and will be amplified by annexes and these in turn by auxiliary documents, encompassing the whole of civil defense and defense mobilization concepts and operations, and uniting it all under one administrator. It is a national plan that is designed to coordinate the activities of other Federal agencies, and state and local governments.[8]

The Promulgation of the Plan contained a statement by the President to the Nation, telling why we need the civil defense and defense mobilization program, and established the basis for the program's execution. It declared, in part, that the Director, OCDM shall manage and direct the civil defense and defense mobilization programs of the United States. It likewise directed that agencies of the Executive Branch of the Federal Government shall plan, prepare, and undertake actions for the execution of this plan as assigned by the Director.

The National Shelter Plan

The plan for shelter protection as was devised by the Federal government and as stated in Annex 10, The National Shelter Plan, of the National Plan for Civil Defense and Defense Mobilization is to provide the stimulation, leadership, guidance and example necessary for the American people to make preparations for shelter. This will be accomplished by coordination

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[8] Ibid., pp. 3-6.

with state and local governments and will be pointed at emphasizing the responsibility of the individual property owner to provide protection on his own premises. As stated in the National Shelter Plan:

> Private organizations and individuals will expedite and facilitate the provision of shelter in accordance with the shelter activities of the jurisdictions in which their properties are located.[9]

It is important that the national policy in regard to shelter protection be stated, inasmuch as this serves as the basic guide for OCDM's prosecution of the national plan. Interpretation of this policy is based on the list of assumptions as taken from the National Shelter Plan:

> 1. Highest priority is to be given to providing for a national active military capability for retaliation and defense against attack. This is the chief deterrent to war since it may eventually have the capability of effectively preventing an enemy from striking intended targets.
>
> 2. With adequate shelter protection a successful attack on the Nation would be more difficult and the temptation of an aggressor to launch an attack would be substantially lessened.
>
> 3. In event of nuclear attack, the danger from radioactive fallout would be widespread, long term and intense. The effects of fallout can be significantly reduced by fallout shelter.[10]

State Participation

For the past ten years Federal civil defense legislation

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[9] Ibid., p. iii.

[10] U. S. Office of Civil and Defense Mobilization, National Plan for Civil Defense and Defense Mobilization, (Washington, D. C.: Government Printing Office, 1958, Annex 10), pp. 2-3.

and administrative action have been shaped by the belief that only by individual action through state and local programs will adequate shelter protection for the Nation be achieved. This system places complete reliance at the state and local level to provide the necessary motivation of John Q. Public and only asks in return that Federal activity be limited to providing certain funds, education, technical assistance, conducting research as necessary and providing required coordination to tie in supplemental programs with the various Federal agencies and states. A strong adherent of the states' rights movement has been Governor Rockefeller of New York who said:

> Regardless, however, of the level of effort of the Federal government, regardless of the level of funds which the Federal government may make available, regardless of the inducements and incentives which the Federal government may offer looking to the development of fallout protection, there will remain, as an essential of any successful program for providing fallout protection for our citizens, the need for State initiative.[11]

At their annual Conference in Puerto Rico in August of 1960 the assembled State Governors declared their personal and official responsibility, as Governor, for the protection of their people against the hazard of fallout in the event of a nuclear war. In keeping with this sense of responsibility, they unanimously adopted both the report of their Special Committee on Civil Defense and a four point resolution calling for:

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[11] Nelson A. Rockefeller, "Need for State and Local Initiative in Stimulating Individual Action," loc. cit.

First - Vigorous State initiative in a campaign of education about the fallout hazard and protection against it.

Second - Immediate steps by all levels of government, state and local as well as Federal, to assist their citizens to survive radioactive fallout and the related consequences of a nuclear attack upon our country.

Third - State initiative to survey the adequacy of fallout protection in State owned or operated facilities and the steps which should be taken to achieve such protection.

Fourth - State initiative in developing a protected seat of state government to assure government leadership and functioning both during and after a nuclear attack.[12]

Probably the most enthusiastic advocate of the shelter theory, Governor Rockefeller proposed that the legislature of the state of New York enact laws making it compulsory that every home and building be equipped with a bomb shelter. Senator Young has taken exception to this plan and stated that for government, either state or Federal, to assume the power to force people to build shelters is a sizable intrusion on individual rights.[13] James H. Douglas, former Deputy Secretary of Defense is of the opinion that we are on the right track in providing information, plans and encouragement at the Federal level, and placing primary reliance upon the states to secure effective action by Americans in their home communities in implementing the Federal shelter policy. He says, "Civil defense is something that people can do largely for themselves, with assistance in credit,

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[12]Nelson A. Rockefeller, "Introductory Statement," White House Conference on Fallout Protection, Washington, D. C., January 25, 1960, p. 5.

[13]Stephen M. Young, "Civil Defense; Billion Dollar Boondoggle," The Progressive, December 1960, p. 18.

and planning and guidance.[14]

The advocates of state responsibility concerning fallout protection base their arguments on the belief that fallout is another element affecting the health and safety of the citizens and thus comes under the classic area of state and local concern and local responsibility.[15] Fallout protection would thus fall within the range of operation of local codes and regulations and of the local inspection and enforcement agencies. Mr. Rockefeller says:

> Since such matters as these are already matters of extensive state and local regulation, inspection and enforcement, any adaptations of these regulatory systems as may be needed to meet the new hazards of radioactive fallout must, if we are to avoid multiplicity of regulation and administrative confusion, necessarily be left to state and local initiative and not to federal action.[16]

Federal Participation

In order to implement the National Shelter Plan which emphasizes coordination with state and local governments the OCDM has adopted a national shelter policy which is designed to limit federal participation by the following elements:

> 1. The Administration is bringing to every American all of the facts as to the possible effects of nuclear attack and is informing him of the steps which he and his State and local government can take to minimize such effects.

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[14] James H. Douglas, "Nature of Threat and Importance of Civil Defense," White House Conference on Fallout Protection, Washington, D. C., January 25, 1960, p. 11.

[15] Nelson A. Rockefeller, "Introductory Statement," op. cit., p. 23.

[16] Ibid.

2. The Administration is conducting surveys of existing structures on a sampling basis, in order to assemble definite information on the capabilities of existing structures to provide fallout shelter, particularly in the larger cities.

3. The Administration is accelerating research in order to show how fallout shelters may be incorporated in existing, as well as in new, buildings--whether in homes, other private buildings, or government structures. Designs of shelters are being perfected to assure the most economical and effective types.

4. The Administration is constructing a limited number of prototype shelters of various kinds, suitable to differing geographical and climatic areas. These are dual-purpose shelters which will have practical peacetime uses. Upon completion they will be tested by actual occupancy by differing numbers of people for realistic periods of time.

5. The Administration is providing leadership and example by providing for the incorporation of fallout shelters in appropriate new and existing Federal buildings hereafter designed for civilian use.[17]

In support of the above policy OCDM has instituted action by certain Federal agencies which are designed to support the national shelter policy above. These are recent measures involving Federal loan or grants-in-aid programs.

1. The 1961 budget will include funds for incorporation of fallout shelters in all new civilian Federal structures determined to be suitable.

2. The Federal Housing Administration (FHA) and the Veterans Administration have announced that fallout shelters will be eligible items in determining valuation for loans or loan insurance. In addition, FHA, home-improvement loans are available to finance building of fallout shelter in existing structures.

3. The Housing and Home Finance Agency (HHFA) and the Community Facilities Administration have announced

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[17]U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, 86th Cong., 2d Sess., Washington, D. C., 1960, p. 8.

that fallout shelters may be included in projects qualifying for Federal loans and advances under its College Housing Program, its Public Facilities Loan Program, and its Project Planning Program.

4. The Department of Health has announced that grants for hospital construction under the Hill-Burton Act will be eligible for incorporation of fallout shelters.

5. The HHFA and the Urban Renewal Administration will make "Master Planning" grants to local authorities available for planning the incorporation of fallout shelters in urban redevelopment projects. In addition, local authorities may include fallout shelters in site development improvements and receive full credit toward the local share of the project.[18]

The view, which has been adopted by the OCDM and represents the official policy of the Executive Branch, is that each individual citizen must be prepared to take care of himself and his family in the event of an enemy attack. Limited Federal assistance is planned, but outside help for individuals is expected to come primarily from State and local civil defense efforts.[19]

Criticism of Federal Activity

Proponents of greater federal participation in civil defense are many and their viewpoints indicate immediate changes are necessary. The subcommittee in what it terms a realistic view believes that if the Federal government doesn't supply the funds and direct a construction program for communal shelters,

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[18]Leo A. Hoegh, "Feasibility of Fallout Shelter and Relation of Fallout Shelter," White House Conference on Fallout Protection, January 25, 1960, p. 22.

[19]U. S. Congress, House Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, 86th Cong., 2d Sess., Washington, D. C., Report No. 2069, 1960, p. 6.

there will be no shelter program.[20] Many federal advocates believe that the Federal government has greater resources than the states which cannot execute the comprehensive planning and construction required for civil defense in the nuclear age. Director Hoegh believes the Federal government by failure to provide funds for incorporating shelters in Federal buildings has greatly impeded the motivation needed to gain support for state and local programs.[21] This is pretty well backed up by Mr. Riehlman, a member of the subcommittee who said, "I think the chairman and I both agree that the Federal government must take a greater interest and greater stand in this field if we are to get it accomplished."[22] Mr. Morgenstern says:

> The present government has not faced up to the facts of the situation. Neither has Congress, usually so far ahead of the Administration, seen fit to take action. Perhaps this is due to the sad circumstance that our civil defense organization is a shambles.[23]

The State of Washington indicates that a strong statement of policy by the Congress and a similar statement by the President regarding a shelter program would do much to assist the state to take steps for survival.[24]

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[20] Ibid., p. 4.

[21] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, op. cit., p. 51.

[22] Ibid., p. 59.

[23] Askar Morgenstern, The Question of National Defense (New York: Random House, 1959), p. 113.

[24] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, op. cit., p. 54.

Foreign Civil Defense

An evaluation of foreign civil defense capabilities is necessary in order that a relative comparison can be made. It appears that all eleven of the European countries with membership in the North Atlantic Treaty Organization are carrying out civil defense programs of varying quality. Sweden and Switzerland, two countries that are not members of any military alliance, have very active civil defense programs. Dr. Paul McGrath, deputy Director of Intelligence and National Security Affairs, of OCDM has summarized it:

> At the present time the best non-military defense capabilities in Western Europe are to be found in Switzerland and the three Scandinavian countries. The United Kingdom, Belgium and the Netherlands have strong civil defense organizations, but they have very little effective shelter capacity. West Germany has expanded its program somewhat. The other countries of Western Europe are not significantly beyond the planning stage. The Scandinavian countries have laws providing for compulsory registration for civil defense duties and all have expensive shelter programs. Sweden, which may have the most advanced civil defense program in the Free World, is noted for its deep shelters both for population and industry. Deep-rock or concrete shelters are now completed or are being built in or near all Swedish cities with peacetime populations of at least 50,000. Each of these shelters will accommodate 5,000 to 15,000 persons and some are built with the dual purpose of serving in peacetime as under-ground garages.[25]

The Soviets also appear to believe that in modern warfare the front-lines would be on the homefront. The USSR maintains an elaborate civil defense system and a massive

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[25]Paul C. McGrath, Defense in the Nuclear Era. A briefing presented by the Deputy Director of Intelligence and National Security Affairs, OCDM, February 21, 1961, p. 11.

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civilian program of compulsory training. Civil defense has an impact on the Soviet population by means of a massive civilian training program which is run by the government with help from the Communist Party.[26] The Soviet regime has been conducting civil defense training courses of required instruction for every one of the more than 200 million Soviet citizens during the past six years. The 1961 program consists of 18 hours of obligatory training in practical aspects of civil defense. Every civilian in the USSR has both the opportunity and the duty to learn the fundamentals of self-protection and survival in a post-nuclear attack environment. The status of shelter protection for the populace is not known. It is apparent that the inclusion of protective construction features is some apartment houses and other new buildings has been a standard practice in many centers of population and industry and that basement shelter already is available to an important segment of the urban population in many areas of the USSR.[27] The construction of solid-wall basements with reinforced concrete ceilings provides a valuable degree of protection against nuclear radiation.

The problem of civil defense in the USSR differs from that in our country. First, because the Soviet program is compulsory rather than voluntary as it is here. Secondly, Soviet industrial and population centers are smaller and much more widely dispersed. Third, the Soviet regime does not reveal its civil defense expenditures in its published budget.

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[26] Ibid., p. 14. [27] Ibid., p. 15.

Fourth, the many years of regimentation and police state controls permit the ready mobilization of personnel and materiel for any program desired by the Soviet rulers.[28]

The Soviet civil defense system probably is spotty in its effectiveness and it may be considerably less than adequate in terms of defense against large-scale nuclear warfare. Nonetheless, it clearly is one element of total defense and the Soviet government has been devoting a considerable expenditure of money and man hours to improving the program. Overall the Russians appear to be further along the road to preparation than the United States. Millions of peoples have received stern training in civil defense, are instructed in first aid and have at least a rudimentary acquaintance with tasks that have to be performed after attack. The Russians, living a much more Spartan life than we do, would find the new hardships nearer their present existence and have shown in the last war how well they are able to cope with the grim life of wartime destruction.[29] In the United States no family has experience of this kind.

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[28] Ibid., p. 16.

[29] Askar Morgenstern, The Question of National Defense (New York: Random House, 1959), p. 114.

CHAPTER V

SUMMARY

The leadership of the United States in the international affairs of the Free World in its contest with Soviet Russia heading up the Communist World demands among other essential elements a formidable position of military strength both active and passive.

The military structure of the United States places main reliance on a strong nuclear deterrent force comprise mainly of the Strategic Air Command, Intercontinental Ballistic Missiles, and Polaris equipped submarines.

Inasmuch as the military positions of the two countries are considered fairly equal in relative strength, it is questionable whether one or the other or both would risk annihilation by initiating or engaging in a nuclear contest.

However, on the basis that the intentions and designs of world powers cannot be predicted, and considering the precarious balance of international hostility that exists between the United States and Soviet Russia it is reasonable to assume that war could break out as the result of certain unresolved conditions arising.

It is, therefore, expedient that problems relating to the survival of the Nation be considered inasmuch as the

theatre of operations of a nuclear war will be world wide.

The protection of the population of the United States then becomes of primary importance and thus an evaluation of shelter protection in relation to overall civil defense posture has been undertaken.

The vulnerability of the population of the United States today is extensive and nation wide. It is doubtful if 10 percent of the population could find or adapt shelter protection from radiation fallout in the event of a nuclear attack. Studies have determined that up to 160 million Americans could become casualties.

The Federal government, through the Office of Civil and Mobilization Defense, in cooperation with the states and local governments have an organized civil defense system aimed at inducing private home owners and local governments to provide shelter protection. This program to date has proved a failure mainly because of the apathy of the people, Congress and the administration.

There are varied programs of shelters both of fallout and blast characteristics that can in a relatively short time be implemented. It is obvious that before anything concrete can be done that Presidential leadership and Congressional action is required to stimulate any accepted program.

CHAPTER VI

CONCLUSIONS

International Relations

The Future

To neglect an analysis of Soviet doctrine and goals would cloud this evaluation because the aggressive international attitude of the Russians is directly reflected by their strong military position. We cannot ignore the fact that but for one important agreement on the ban of nuclear tests the United States and Russia have been unable to reach an international bargaining position in the last five years. Just the atmosphere of this situation is deplorable. The dangers of these two military giants reaching an impasse in the next ten years can only be highlighted by the present unsolved problems of Berlin and Laos, the nationalism of the African states and the "go home Yankee" reaction that is paramount in many parts of the world. A similar conflict of interests has in the recent past produced two world wars where the international situations were than even more tolerant than the present. The future is not bright. It is gray and dismal. If this nation's survival depends on the nuclear deterrent alone, in view of the immense problems and issues of the future, it would appear that our

national leaders have failed in their overall judgment of United States position.

The dimensions of the nuclear threat to the United States have unfolded with shocking speed within the last two years. First is the development of ICBM's within both the United States and Russia thereby establishing both countries on a relatively equal plane in respect of their military capabilities. Second is the general agreement that active military defenses are likely to be ineffective against large-scale ballistic missile attacks for the foreseeable future.

The significance of this new and dangerous situation does not necessarily increase the vulnerability of the United States and the likelihood of a Russian attack. The deliberate initiation of general nuclear war is considered unlikely at the present. However, the immensity of this issue concerns the aspects of survival in the United States. Should general war occur in the 1960's, a capability will exist for delivering a devastating nuclear attack against the continental United States with little useful warning and without adequate active military defense against ballistic delivery vehicles.

The transition into the missile era does not eliminate the familiar problems of civil defense nor reduce the importance of shelter protection. On the contrary, these problems are that much more enlarged and highlighted. Recent scientific and military studies have warned of the declining effectiveness of active military defense and have recommended that decisions be made with respect to improvements in non-military defense as

a matter of urgency. The effect of these studies has been to generate a consensus favorable to a major exploration of the potentials of passive defense measures both for the military establishment and for the population at large. The sharply declining confidence in the effectiveness of active defenses has resulted in an increased sense of need with respect to the further development of passive defense.

Shelter Protection

General

One of the major conclusions of this evaluation of non-military defense is that there are more promising possibilities for alleviating the disaster of a nuclear war than have been generally recognized. There appear to be possibilities of providing inexpensive fallout protection for people and for the construction of blast shelters. There likewise appear to be good possibilities of limiting the long-term biological damage to the population resulting from total radiation, of ensuring a minimum supply of food immediately after the attack, of reconstructing destroyed industrial capital within much less than a generation, and of integrating non-military defense measures with other aspects of national defense. Moreover, some hypothetical non-military defense systems that have been examined seem to be capable of saving tens of millions of lives in the face of conceivable enemy attacks, and of preserving a foundation for meeting long-run radiation hazards

and for post-attack economic recuperation.

Population Protection

Shelter appears to be the key element in protection of the population and far from effective than any foreseeable anti-ICBM system for protecting the population against the affects of nuclear attack. According to the studies presented in this evaluation, fallout shelter alone would reduce casualties by 50 to 80 percent depending upon assumptions regarding enemy targeting philosophy, circumstances under which the attack might occur, time of attack, etc. Even if a successful terminal intercept anti-ICBM were developed the population would still be vulnerable to a fallout attack from missiles which escaped destruction. Thus there appears to be no foreseeable defense against fallout except by shelter.

For these reasons shelter for the population is regarded as an essential part of balanced military strength and, consequently, as an integral part of a successful deterrent posture. Without shelter for the population, survival and recovery would be little affected by other passive defense measures.

It must be emphasized that our entire civil defense system is worthless without a system of shelter protection. The practicalities of preserving an expensive civil defense administration like OCDM and the expenditure to date of over a billion dollars is without justification if the end product is not to be adequate shelter protection to provide for survival of the population.

Federal Weaknesses

State shelter programs have not been successful and relatively few individual shelters of all types have been voluntarily constructed. The failure of the state programs to reach their objectives is in part a reflection of federal weaknesses. Although the subcommittee takes the view that a comprehensive nationwide shelter program should replace the present system which depends upon individual action in cooperation with state and local programs, this philosophy is not fully concurred with.[1] It is realized, however, that the main weaknesses of the administration of the nation's shelter program are within the federal domain. Take the attitude of the city of New Haven, Connecticut for example:

> The President, the Congress, and many of the members of the Armed Forces have let it appear to the people that our power of retaliation is sufficient to prevent a probable attack. State and local governments have thus been induced to hold civil defense expenditures to the minimum. Industry follows the lead of Government. Under these conditions people find it difficult to understand why it is important for them to build home fallout shelters when government and industry make no serious efforts to do so.[2]

There is substantial indication that there is much dissatisfaction on the part of state and local officials with respect to the national shelter policy in terms of federal participation.

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[1] U. S. Congress, House Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, 86th Cong., 2d Sess., Washington, D. C., Report No. 2069, 1960, p. 2.

[2] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, 86th Cong., 2d Sess., Washington, D. C., 1960, p. 353.

The general lack of progress in the construction of all types of shelters was variously attributed to an absence of Federal guidance, lack of funds at state and local levels, conflicting philosophies of evacuation and shelter construction, insufficient incentives offered by the Federal government, the lack of direct Federal assistance, and in some cases, problems relating to local building codes and property assessments for local tax purposes. Almost all the mayors and governors responding to the subcommittee's questionnaire reported an alarming lack of fallout protection in public school buildings.[3] Governor Orville Freeman says:

> The Federal program contradicts itself. Counties and municipalities look to the states for leadership and the citizens look to the local government in turn. There is insufficient direct Federal assistance to local counties and state governments to enable them to carry out their responsibilities.[4]

Thus our shelter protection as of this date is negligible and our civil defense system as a result is archaic and ineffectual in its capability to meet 1960-1970 passive defense requirements. If this present system is not designed to shortly bring into being a Federal government sponsored formal shelter program, then a waste of public funds is occurring--funds that could be used to increase our defensive deterrent

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[3] U. S. Congress, House Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, op. cit., p. 12.

[4] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, op. cit., p. 49.

posture.

Shelter and Public Acceptance

To analyze the wide spectrum of public attitude and to define the reason why no significant shelter program is under way necessitate an appreciation of human relations. There are primarily too many negative variations of opinion that have been formed by failure of the people to fully understand the complete impact of nuclear war. Most of the public's ideas and reactions are based on "half-truths" that prevent a formidable public reaction from taking place. These "half-truths" are the stepchildren of secret sensitive data about nuclear weapons tests and effects that the government has released only within the past few years. When this classified data was finally given to the public in the form of newspaper and magazine publications, distortions and exaggerations warped the facts which resulted in the public forming a wide variation of opinions and attitudes that are in many cases far from the official truth. OCDM's efforts to educate the American people have been resisted to date and it is unlikely that under the present conditions of public fear, apathy, disinterest and neglect that any programs instituted by OCDM will change the opinion of the present generation of voters.

Office of Civil and Defense Mobilization

It is not difficult to understand the tremendous obstacles that are facing OCDM in its efforts to establish a workable program. The main reason the shelter program as

sponsored by OCDM has failed is not because of OCDM; it is not because of failure on the part of Congress; it is not because of the lack of state and local motivation; it is simply because the present and the past administrations have not considered it as a national requirement.

The political impact of a federally sponsored national shelter program is impressive. The gaining of public support to expend large outlays of funds for an unpopular project is foremost. If this could be accomplished it would then be necessary to convince a reluctant Congress of the need of such a program. The budget requirements for this program would require a major administrative decision. Finally, international considerations regarding the strategic value of such a program are evident and they would have to be weighed against the funds being appropriated for military defense.

It is apparent from the viewpoint of past administrations that the defensive posture of the United States does not require the inclusion of a federally sponsored shelter program. As a result of this position OCDM serves as a political expedient for both Congress and the President. In its more or less semi-dormant status it carries out functions of limited civil defense that neither satisfy nor radically irritate the majority of American voters. It thus ably serves the designs of the administration in that it cannot be righteously accused of neglecting the welfare and protection of the people.

This opinion is in no way a criticism of OCDM. On the

contrary it is a recognition of the difficulties and handicap this organization is obliged to work under. In spite of unenthusiastic backing by the President and Congress since OCDM's inception, the Agency has managed to devise a shelter program that can prove effective if it should get a go-ahead from the administration.

There is little doubt that the most effective shelter program would emphasize construction of fallout shelters, or at least improvement of existing basements, in a band ten to forty or more miles outside of likely target cities, keyed to detailed traffic plans for evacuation to these shelters in the hours following an enemy first strike on SAC bases.[5] A certain amount of fallout shelter would need to be built or improvised in the cities for the use of those workers and residents of the central areas of large cities who could not hope to escape to shelter beyond the range of direct weapons effects, in the time between strikes on military targets and the arrival of fallout.

The main problem to the above program is that if we decide to restrict ourselves to fall-out shelters, which can clearly not be built for large cities without required blast shelters, a new and grave social problem arises. It may produce serious troubles. People living in the large cities

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[5] Non-Military Defense, Wisconsin--A Case Study, ed. William K. Chipman (Proceedings of a Conference at The Wisconsin Center), University of Wisconsin, Madison, October 1-3, 1959, p. 14.

will know that they are to be sacrificed in case of large-scale war, while those living in the country, on farms, in small communities will have a better chance of survival. This chance would not be due to a limitation of the enemy's weapons and capabilities. It would be due to our own protective measures, which could be applied only to a part of the population. This obstacle is without doubt the main reason why the administration is unwilling to proceed with a large scale nationally sponsored fallout shelter program.

A second-best approach for the present would therefore be for states to encourage or to require construction of simple home shelters, and to survey existing basement shelter in areas surrounding cities. Plans should also be made for rapid improvement of these basement areas in time of crisis and for evacuation to such perpheral shelters as had been made ready prior to an attack. The home-shelter program might generate enough concern that the national shelter policy could be modified to provide for joint federal-state construction of shelters in the areas surrounding likely target cities.

With respect to individual family fallout shelter construction on the do-it-yourself basis, the subcommittee has indicated its belief that the most important single inducement the Federal government could offer would be to allow individual income tax deductions, with appropriate limits, for the cost of constructing private shelters. This type of Federal incentive, more than any other was advocated by governors and mayors responding to the subcommittee's survey.

Administration Deficiencies

There is no doubt that people in high positions of government, people that have had access to official documents and people that understand the survival probabilities following a nuclear war realize the dramatic importance and need of shelter protection for the population. The fact that an official branch of the administration has failed to stir the desired public reaction is no justification for condemnation of OCDM. Within the realm of the Federal government there has been established a national organization that has by administration, research, operation and education laid the essential groundwork for the implementation of a national shelter program but has been prevented from carrying it out only by the legislative and political climate within which it works. The results of subcommittee hearings confirms this opinion.[6]

> Governor Hoegh works in an environment of authority and responsibility which is grossly inadequate to the national need. No matter how hard he works at his present job, it is too narrowly circumscribed by national law and policy to achieve the tasks that must be achieved if this Nation is to be assured the essentials of survival.[7]

It is not believed that public opinion is ready to support any voluntary shelter program now or in the immediate future. Ironically many congressmen are likewise reluctant to add their influence. If the administration waits for public

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[6]U. S. Congress, House Committee on Government Operations, Civil Defense; Twenty-First Intermediate Report, op. cit., p. 20.

[7]Ibid., p. 2.

urgency to develop to eventually force the government into action it will be remiss in its public responsibility--for at that time it may be too late. What is urgently required is executive leadership of the highest order where the President makes a personal appeal to both the public and the law-makers to enact a federally sponsored shelter program. This is supported by the subcommittee:

> We recommend the creation of a Cabinet-level Federal agency vested with broad statutory authority and charged with the responsibility of planning and administering a national civil defense program.[8]

The subcommittee in a letter to the President urged that he play a more influential role by assigning to civil defense a responsibility and an allocation of resources by the Federal government in far greater measure than has heretofore been evidenced.[9]

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[8] Ibid., p. 3.

[9] U. S. Congress, House Committee on Government Operations, Civil Defense; Hearings, op. cit., p. 353.

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