

*NPA's*  
*Principles and Objectives*

A STATEMENT BY  
THE  
BOARD OF TRUSTEES



NATIONAL PLANNING ASSOCIATION  
1606 New Hampshire Avenue, N.W.,  
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## *Free Americans have the Duty and the Ability to Shape Their Own Future*

The National Planning Association is an organization in which citizens use private resources and personal initiative to help in the national search for workable solutions to America's major economic, political, and social problems. They meet, not as spokesmen for organizations or groups, but as individuals.

## *This Private Planning for the Common Good is a Road to Human Freedom*

If we are to have a people's government, in a people's economy, planning must never become the vested interest of any one group, private or public. Broad and vigorous participation by all citizens is essential. Freedom is more than a heritage—it is a new challenge to each succeeding generation.

## *Free Men Want a Voice in the Creation of Plans*

We, as Americans, reject a planned society in which plans are imposed from above or from abroad. We reject a planless society where everybody grabs for what he can get without regard for the common good. We believe in cooperative planning in all activities and at all levels of enterprise, private and public.

## *We in NPA Believe:*

- ▶ In the protection and promotion of the integrity and dignity of the individual.
- ▶ In an enterprising economic system—competitive in fact as well as in name—with private business and industry and agriculture operating as the primary means for providing jobs and producing goods and services.
- ▶ In cooperation of agriculture, business, labor, and the professions in using the ever-expanding fund of human understanding and scientific knowledge to increase their common respect, their productivity, their standard of living, and their satisfaction in doing worthwhile work in a skillful way.
- ▶ In intelligent performance by our Government of its constitutional functions in meeting our increasingly critical national and international problems.
- ▶ In cooperation with other nations in the organization of world peace and assistance to friendly nations in speeding their economic recovery and the freedom and efficiency of their peoples.

## *Working Together Helps Break Down Barriers to Understanding*

The National Planning Association brings together many leaders from sometimes rival economic, political, and social fields to work toward common objectives.

Thus, in NPA leaders of Agriculture,



Business, Labor, and the Professions learn to know each other, gain respect for and understanding of each other's views, and strengthen their conviction of the interdependence of all Americans. New stress must be laid on all human bonds and ties if we are to survive the competition and assaults of unfriendly ideologies.

### *Planning Rests on Respect for Facts*

The National Planning Association seeks realistic solutions to emerging problems which affect the welfare and the security of the American people. We know that often, when the facts are established, points of controversy disappear and conflicting groups are able to reach agreement on practical action. NPA seeks to gather all the available facts and to work toward a solution in the light of the facts.

### *National Planning is a Challenge to the Best in America*

We live in a time which as never before calls for the best use of America's resources—human, material, and moral. The appeal of the National Planning Association is to men and women with the courage, integrity, sense of duty, ability, and social conscience which great responsibilities require.

### *We can Build a Better World*

The National Planning Association is fully aware that freedom can perish in

group conflict. In wise compromise lies the strength of democracy. The start which the American people have made proves the limitless promise of free men and women working toward a freer world. The world is not finished. If we want a better world, we must work together for it.

*Unanimously approved, December 9, 1947*

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# NATIONAL PLANNING ASSOCIATION

A NONPROFIT, NONPOLITICAL ORGANIZATION, ESTABLISHED IN 1934

DEVOTED TO PLANNING BY AMERICANS IN AGRICULTURE, BUSINESS, LABOR, AND THE PROFESSIONS

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FOR RELEASE: Monday, May 9, 1955

A PROGRAM FOR  
THE  
NONMILITARY DEFENSE OF THE UNITED STATES

A Statement on National Policy  
by  
The Special Policy Committee on Nonmilitary Defense Planning  
of the  
National Planning Association

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\* See lettered footnotes to text of Committee Statement



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The threat of nuclear war hangs over the world like an ominous cloud.

To protect our country in this dangerous period we are spending some forty billion dollars annually on building and maintaining our military strength. Up to the present, however, we have been far too little concerned with those nonmilitary measures that hold out possibilities for increasing our ability to survive atomic attack, to rebuild our production capacity rapidly, and to support our drive to victory.

The failure to consider and adopt an integrated and adequate program of nonmilitary defense is a dangerous weakness in the nation's security effort. This weakness erodes the strength upon which we rely to establish and maintain peace. It diminishes our survival potential in the event of attack and it reduces our capacity to mobilize resources for victory after attack.

If nuclear war comes, there is strong likelihood that it will be directed at the heart of our economic strength: our major cities; our industrial concentrations; our power, fuel, transportation, and communication networks. If we can take action now to reduce our vulnerability to attack and to speed our ability to recuperate, we will substantially reduce the likelihood of attack and will save lives and resources if it comes. We will also make an important contribution to the ultimate victory that will alone preserve the civilization and the way of life we cherish.

Building a strong nonmilitary defense program is a task that cannot be left to someone else, some remote agency of government, some existing well-established institutions. To be successful, this must be a truly national program -- in which individual citizens, business firms, state and local governments, civic organizations, and the national government all participate. Each has a proper role, each a responsibility.

This Policy Statement emphasizes the critical issues in nonmilitary defense that need the attention and understanding of all citizens. It presents specific

recommendations for the action by public and private agencies which will achieve a clearer definition of the assignments for nonmilitary defense and provide the necessary leadership for the entire program.

The report that accompanies this Policy Statement describes the nature of the threat, describes the major tasks of nonmilitary defense in the broadest sense, and appraises the present state of planning to accomplish these tasks in government and industry.

## THE ROLE OF NONMILITARY DEFENSE

Nonmilitary defense must be an essential and integral part of the total national security program.

The national security program should consist of four well-balanced parts:

1. A positive international program, including:
  - a. Efforts through the United Nations and other channels to secure agreement with the Soviet bloc aimed at guarantees of peaceful settlement of disputes.
  - b. Efforts to build and maintain the military and economic strength of the free world.
2. A strong military offensive potential with appropriate emphasis on air power.
3. A strong military defense for the continental United States.
4. An effective nonmilitary defense program founded on a coordinated govern-<sup>a/</sup>ment and industry effort.

The first three parts of this combined national security program are well under way. It is not the purpose of this statement and report to appraise them. It is critically important that prompt action be taken to correct the clearly lagging development of the fourth part. Without such a carefully planned nonmilitary defense effort, the value of the other parts of our security program will be significantly lessened, both as deterrents to war and as protection against defeat.

a/ Footnote by Mayor Frank P. Zoidler: Possibly a fifth part of a program for the nation's security should be education of the public to the full significance of the danger from atomic weapons, so that elements eager to loose war may be restrained from advocating rash proposals; and so that the public is psychologically prepared to meet the enormous exertions necessary to alter their own way of life. Psychological preparation is an important part of nonmilitary and civil defense.



Our people, our resources, our will to recover and fight back, and our ability to build the tools of military victory will all be weaker than they need be. <sup>b/</sup>

This balanced national security program can be both a deterrent to war and, if war should come, an important means to win it.

The fear of a devastating retaliatory strike at his heartland may be a major factor influencing an enemy against starting a war. The knowledge that our military defense can destroy a majority of attackers before they reach their targets reinforces this influence. The further recognition that our nonmilitary defense strength would minimize loss of lives and resources in the initial attack, would speed recovery of economic potential, and would support an early advance to high levels of military production -- all add to the deterrent value of the entire program and to the likelihood of our victory if war is forced upon us.

Reports on recent developments in nuclear weapons and on the effects of their use have persuaded some people that many nonmilitary defense measures are outmoded or will be useless. These recently-doubted measures include dispersion of industry, dispersal or evacuation of people from urban centers, provision of bomb shelters, and other civil defense activities.

b/ Footnote by J. Murray Mitchell: The four-point analysis of a "total National Security Program" seems to me excellent as far as it goes. The topical development of "an effective nonmilitary defense Program" which makes up the rest of the N.P.A. statement is informative and logical so far as the social engineering aspects of the problem are concerned. It seems, to me however, that there has been left out a whole dimension of national security which is absolutely fundamental, and which is arrestingly reflected in the following excerpt from President Eisenhower's address to the Advertising Council on March 22, 1955: "Today there is a great ideological struggle going on in the world. One side upholds what it calls the materialistic dialectic. Denying the existence of spiritual values, it maintains that man responds only to materialistic influences." We all probably agree with this, but it seems to me that we have neglected to an astonishing degree facing up to the fact that intellectual and spiritual factors are an integral and vital part of national defense. To deal with "the nonmilitary defense of the United States" without any recognition of this dimension is like presenting Hamlet without the Prince of Denmark. In time of war the factor of the intangible is accepted. Napoleon said that in war the spiritual is to the material as three is to one. We still have to learn that cold war is war and that the decisive factor may well be not available hardware and economic might but the mind and spirit. Perhaps this is a subject to which N.P.A. should devote a future study.

A sober assessment of the hazards involved, and of the extent to which a skillfully coordinated government-industry-citizen program can provide the means to survive attack and prepare for victory, leads to the opposite conclusion. Effective nonmilitary defense is a feasible and necessary part of the total national security program. And a nonmilitary defense effort can be designed which is practical and within our resource and cost capacities. It must be a dynamic effort, and must face the burden of obsolescence and change as the nature of the threat changes in years to come.

We give our analysis of the essentials of the problem, followed (at page 26) by our Recommendations.



## THE DIMENSIONS OF THE PROBLEM

Designing an effective nonmilitary defense program depends upon an informed evaluation of the hazards involved in a probable attack.<sup>1/</sup> Present knowledge of the effects of nuclear weapons is briefly summarized in the following paragraphs. The Report contains more details.

The effects of a nuclear explosion are blast, thermal radiation, and nuclear radiation. While the extent of these effects depends upon the energy release of the bomb, an increase in the power of the bomb would not yield a proportional increase in the range of damage.

The range of blast damage is determined by the cube root of the size of bomb used. If we take as the basis for calculation a nominal atomic bomb described as a "1x bomb", a 1,000x bomb damages at 10 miles as a 1x bomb does at 1 mile. The innermost zone of virtually complete destruction has a diameter of 1 mile for a 1x bomb and a diameter of 8 miles for a 500x bomb (possible H-bomb).<sup>2/</sup> The zone of partial damage extends out to 2 miles from ground zero for a 1x bomb, and to about 16 miles for a 500x bomb. The gray area of damage (zone of severe, moderate, and partial damage lying between the inner zone of complete destruction and the outlying fringe of no bomb damage) is about 15 times as large as the zone of complete destruction, regardless of the size of bomb. For a 500x bomb, the zone of complete destruction includes about 50 square miles, while the gray area would include about 750 square miles.

While a square root rule theoretically limits the range of thermal radiation damage, the effective range of a bomb may be even further limited by atmospheric conditions. Under atmospheric conditions generally prevalent in large cities, the

1/ A more detailed discussion of the nature of the threat appears in the accompanying report.

2/ I.e., the cube root of 500 is about 8.

limiting range of light thermal damage varies from about 2 miles for a 1x bomb to about 16 miles for a 500x bomb.

The extent of resultant fire damage is more difficult to predict. The thermal flash will start a large number of primary fires that result from charred surfaces and ignited materials. Secondary fires can be caused by upset stoves, electrical short circuits, and broken gas lines that result from blast. These fires may start destructive fire storms that will extend beyond the area of blast damage, but various control measures can limit their scope.

The effective range of initial direct nuclear radiations from gamma rays and neutrons increases slowly as the size of bomb increases. The limiting distance for lethal or disabling initial nuclear radiation dosages is about 1 mile for a 1x bomb and less than 3 miles for a 500x bomb. Post-explosion fallout and residual nuclear contamination present additional complex problems. The blast cloud, consisting of radioactive particles and dust, is affected by unpredictable meteorological factors. Radioactive particles, usually not detectable without instruments, fall like rain on the downwind side of an explosion and lie like a blanket of dust on roofs and ground. These particles give off gamma radiation and can cause radiation sickness or death. It is this secondary result of explosions that has caused so much discussion and concern in recent months.

Some measures of the range of potential contamination are afforded by the reports of the fallout pattern following the explosion of a large thermonuclear device at Bikini Atoll on March 1, 1954. At that test an elongated cigar-shaped area extending some 220 miles downwind and varying in width up to 40 miles was contaminated. An additional contaminated area extended about 20 miles upwind and crosswind from the point of detonation.

On the assumption that no protective measures are taken by people within the fallout area, it has been estimated that the Bikini explosion created sufficient

radioactivity to threaten nearly all lives in a downwind belt of some 140 miles in length and of varying width up to 20 miles. Near the outer edge of the elliptical area -- perhaps 190 miles downwind -- the level of radioactivity would have seriously threatened the lives of 5 to 10 per cent of the continuously exposed population.

Precautionary measures, including evacuation, taking shelter, and avoidance of contaminated surfaces, would substantially reduce the hazard to life. The degree of radioactivity also decreases rapidly. Those who take proper cover promptly and remain there for several days are likely to survive with little damage.<sup>c/</sup>

These facts urge the conclusion that knowledge of the threat and effective nonmilitary defense measures against the threat can save millions of lives, can limit damage to resources, can minimize post-attack confusion, can contribute to more rapid restoration of critical community and industrial resources, and can assure and speed victory.

The total undertaking to encompass these measures must include:

1. Measures to protect people.
2. Measures to minimize damage to essential production resources.
3. Measures to assure economic stabilization, and financial and business confidence, in the post-attack period.
4. Measures to assure effective post-attack management of a seriously damaged economy.

c/ Footnote by Ramsay D. Potts, Jr.: The persistence of radioactivity from 'fall out' from the type of bomb exploded in the test of March 1, 1954 at the Pacific Proving Ground seems to be much greater than has been generally realized. This persistence of radioactivity would probably pose a greater problem on land than at sea. Computations by Dr. Ralph Lapp, published in the February 1955 issue of the Bulletin of the Atomic Scientists, indicate that lingering radioactivity would make 'fall out' areas untenable for continuous habitation for many months after the explosion. This 'fall out' effect creates a problem as grave as any yet faced in the field of nonmilitary defense.



## PROTECTION OF PEOPLE

Intensive study and appropriate action must be taken to provide maximum feasible protection to the population from the blast, radiation, and radioactive effects of attack.

A program of protection of people must be a combination of measures, properly interrelated and balanced, to provide maximum protection against the most realistic concept of a possible attack threat. We do not now have such a program. Intensive study, public education, and action are all needed. The program cannot be static. It must provide for changing emphasis upon various protective measures as the nature of the threat changes in coming years.

At the present time, protection should combine -- in as yet unstudied and undetermined degrees -- the elements of (a) warning methods; (b) public awareness and understanding; (c) shelter -- against direct blast and heat; (d) cover against radioactive fallout; and (e) evacuation of people from probable attack points. A final element, (f) pre-attack dispersal of population from threatened areas, relates to both population and economic resource protection.

Provision of warning time has been regarded as a prerequisite to the effectiveness of other measures. The military responsibility to aid civil defense in this respect has been assumed reasonably well, after a period of uncertainty and delay. It will presumably improve in the next two years. But there will follow a period in the 1960-1970 decade when the probable practicability of launching an attack by intercontinental ballistic missiles (ICBM) will again, presumably, set us back on this count.

Public awareness of and education in protective measures has deteriorated seriously in the past year or eighteen months. Expenditure to assure correction of this seriously lagging factor in the real effectiveness of a nonmilitary defense

program is as important as outlay for physical protection. Without it, an otherwise balanced program would fail. The guidance given must be simple and sane, must be presented as the latest available information, and must be transmitted on a uniform basis at any given time in all parts of the country. The public must have confidence that directions and explanations reflect the latest findings of highest governmental authority, based upon balanced analysis of all risks and factors. The serious split in governmental responsibility under present federal legislation (about which more will be said below) makes this highly difficult to achieve.

The threat of attack by very large bombs has not invalidated the usefulness of shelter. We cannot predict in advance where bombs will fall. The gray area of partial blast and heat damage will be much larger than the areas of total destruction. Simple and inexpensive shelters would contribute greatly to the protection of human lives in these off-zero areas. The known existence of shelters in thousands of dwellings in both urban and suburban areas could greatly increase the public's sense of security. The relative superiority of shelters as a protective measure could be far better understood than it is today.

In order to assure the best protection against radioactive fallout, various means of providing cover (which is a concept distinct from shelter) should be intensively studied and a balanced conclusion reached. Here again public awareness and understanding is at a low ebb.

As a protective measure evacuation has two aspects. Tactical evacuation is a short-period measure -- of a few hours or a few days -- to move people out of immediately threatened target zones. Its usefulness will vary with the margin of time provided by advanced warnings of attack. In contrast, strategic evacuation means the systematic relocation of urban families, the old and infirm, invalids, and children for periods of several weeks or months. This could be carried out

when a period of serious strain in international relations pointed to the distinct possibility of surprise attack. Neither measure can be effective without intensive study and planning, adequate expenditure, and careful education of millions of people. The dispersal of plants and other resources, to be discussed in the next section, would result in a gradual dispersal of population and thereby simplify the evacuation problem.

It is of the greatest importance that a balanced, optimum combination of these measures be determined, and an integrated and adjustable program be established with informed and vigorous citizen participation. The present serious lag in these efforts illustrates most cogently how this fourth element of our total national security program has hitherto been neglected. A small outlay of funds in this area would be of tremendous potential value.



## PROTECTION OF INDUSTRIAL RESOURCES

The critical problems in the protection of industrial resources include (1) reducing vulnerability to attack, (2) speeding post-attack restoration of key facilities, and (3) assuring a rapid buildup of production required to win the war.

Dispersion of essential industrial facilities (with supporting power, transportation, and communication nets and key manpower) ranks high among measures to reduce vulnerability to attack.

About 3 percent of national production capacity is being moved to reasonably dispersed locations annually (a smaller percent judged by the dispersal standards for large bombs). Current government policy on industrial resource dispersal is designed to promote the normal tendency of industry to move to new and less crowded production areas. Neither present nor proposed policy should contemplate an effort to accomplish wholesale transfer of facilities within a short period.

Both the feasibility and the desirability of industrial dispersion as a defense measure have recently come under critical attack. On the question of feasibility, the criticism apparently assumes a rate and scale of dispersal that is neither proposed nor planned by responsible officials. On the question of desirability, the criticism apparently relies on the belief that radioactive fallout after mass attack with nuclear weapons will leave no safe locations within our continental borders.

The possibility cannot be disregarded that an enemy attack might use bombs encased in uranium, cobalt, or some other easily available material that would become extremely radioactive in the explosion. The only defense against a mass attack of this nature which utilized prevailing winds to distribute fallout over most of the

country, would be for people to remain under cover or within shelters until radioactivity decayed.<sup>d/</sup> Dispersal of industrial resources and related personnel would not be a wholly effective defense. But no single measure, taken alone, can be. Dispersal even under this threat surely has advantages.

The theoretical ultimate in defense by dispersal--uniform scattering of population and resources over the entire country, square mile by square mile--would probably mean that no attack would be launched because bombs would not do enough damage to offset the corresponding risks of immediate and effective counterattack. This illustrates how a strong military offensive potential with appropriate emphasis on air power, and an effective nonmilitary defense program founded on a coordinated government and industry effort would be mutually strengthening in their deterrent effects.

We cannot, of course, approach this theoretical extreme. But we can make a bombing attack steadily less profitable by reducing the "pay off" in present highly concentrated urban areas. Each small step taken toward this objective is properly a part of a vigorous nonmilitary program to deter attack.

In recognition of practical economic limitations on the rate of dispersal that can be secured within the near future, it is important to establish minimum dispersal standards, and incentives as well as selective criteria by which to apply such incentives over a long period of years ahead.

Two considerations should be given important weight in guiding and administering a national industrial resource dispersal program.

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<sup>d/</sup> Footnote by Ramsey D. Potts, Jr.: The persistence of radioactivity caused by "fall out" from the explosion of a bomb encased in uranium may make necessary drastic revisions in much of the planning for civil defense. We need to have as soon as possible answers to such questions as: How long would people have to remain under cover? Would lingering radiation make the "fall out" area uninhabitable (even months after the explosion)? Could contaminated surfaces be decontaminated? Would exposed crops, livestock and water be contaminated to an extent rendering them unusable? etc.

First, in letting military and defense-supporting production contracts, maximum effort should be made to spread prime contracts (and related subcontracts) among producers in dispersed locations. However, the limitations of such a program must be recognized. The problem is mainly in the general industrial structure producing the entire range of civilian-type industrial products and components, rather than in munitions. The destruction of facilities producing bearings can be far more critical than the destruction of facilities in which planes or tanks are assembled.

Second, the pattern of dispersion that should be encouraged in relation to existing metropolitan areas needs careful thought. Instead of encouraging an unplanned scattering of industrial facilities and population around cities, defense objectives suggest the desirability of the long-run development of satellite cities at appropriate distances from a central city, connected with it and with each other by essential transportation, communication, and public utility facilities. Building such a series of new smaller cities around each of our big cities is essentially a problem of metropolitan-area government, which transcends both local and state constitutional authority and thus requires Federal leadership. It does not necessarily mean greater net expenditures. Rather, it calls for guiding normal private and public investment in the extension and redevelopment of cities to give maximum efficiency and security.

A number of incentives require careful appraisal. These include: (1) substantial enlargement of the present tax amortization program, specifically directed at dispersal objectives; (2) government construction of dispersed facilities for selected critical products, to be leased to industry on appropriate terms with a purchase option; (3) preferential public (and private) contract terms for manufacturing undertaken in dispersed locations; (4) a series of regional agreements and zoning regulations which will assure industry of favorable long-run costs in dispersed areas.



A changed emphasis in national stockpiling policy is required to assure continuity of essential production in the post-attack period.

The current stockpile program reflects the fear of wartime material shortages such as we encountered in World War II. Most of our stockpile resources are "critical" raw materials. They would be needed in a long war of attrition, in which neither side used nuclear weapons. There are good reasons for believing, however, that raw materials shortages would not directly handicap output in the first year or more following a devastating nuclear attack.

Such an attack will destroy industrial facilities and thereby remove much of industry's capacity to chew up raw materials. With from one-half to two-thirds of normal industrial production lost for weeks and months following mass attack resulting not only from destruction but more seriously from curtailment caused by interindustry imbalances--problems of assuring materials to producers are likely to be of secondary importance for an extended period. Plant reconstruction and rehabilitation will be the core of our effort to regain the level of production required to rehabilitate the economy and fight a war to ultimate victory.

Present stockpile policy has its roots in the conditions of the last war, conditions of rapidly expanding production hardly likely to be experienced following heavy bomb attack.

What are the stockpile reserves that will be really needed?

First in importance are reserves of finished munitions to enable us to conduct war without the aid of new production for many months after attack.

Second, we need emergency-care supplies and equipment for millions of casualties.

Third, we need islands or citadels of absolutely protected special-purpose plant, machinery, skilled labor, and materials sufficient to assure certain, though small, output of key military weapons systems without any assistance whatsoever

from the supporting industrial plant of the nation (e.g., a few fully integrated, self-contained, fully protected underground plants).<sup>e/</sup>

Fourth, we need stored reserves of those items or combinations of equipment essential to the reconstruction of industry, which would be because of the long leadtime period needed for their manufacture and the lack of any spares, the controlling elements in the timetable for restoring productive capacity.

Lastly (but now claiming the lion's share of public investment), we need modest reserves of the relatively small group of raw materials that would have to come from foreign territory likely to be lost or cut off, or that are produced or processed from domestic sources vulnerable to nuclear attack.

Our present legislation, and our present stockpile and mobilization policies, emphasize these objectives in astonishingly lopsided fashion. The first and last objectives are the only ones where really forehanded preparation has been carried out. The third, neglected so far as public knowledge goes, is not a subject for discussion in an unclassified document. A small beginning has been made on the second objective by Federal Civil Defense Administration, using both federal and state funds.

American industry can certainly help to determine the remedial action needed to place the stockpiling of critical long leadtime reconstruction item in its proper relative status. Studies of the reconstruction problems following attack point to an extraordinarily rapid repair and rebuilding cycle of from six to ten months--once the confusion and panic period has been passed and assuming a high level of defense success against follow-up attacks. But all our American ingenuity

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<sup>e/</sup> Footnote by Col. A. Armstrong: Although this is not a phase of the subject with which I am thoroughly familiar, I am very doubtful of the practicability of building a few fully-integrated, self-contained, fully protected underground plants. Unless detailed study showed differently, I believe it more practical to rely on multiple sources of supply from plants removed from centers of population and industry.

and war-induced speed of construction would be nullified by the need to sit on our figurative hands waiting for units of complex equipment which could not possibly be designed and built in less than 18, 24, or even 30 months.

Many companies have set up programs for storing records, blueprints, and normal spare parts reserves in safe locations. They lack funds to purchase, own, and store expensive and elaborate equipment without which all other plans for fast rehabilitation might be ineffective. Some industries have no such items in their essential production chain; others have only one or two such bottlenecks; still others have groups of machines or whole processes where the period of new construction is unavoidably long. Where are these units located? Can they be used interchangeably, under war pressure conditions, by any one of several companies in the industry? What is their cost? This cost is hardly likely to be more than a small fraction of what has already been invested in materials that may not be needed. Even if future obsolescence is considered to be a problem, would not the pressures of war recovery require the immediate emergency use of obsolescent equipment rather than a two- or three-year period of waiting, with no output?

These are questions that American industry ought to be answering. Task groups in a hundred or more segments of war-essential industry could give the answers in a few months. Machinery exists for advising government through relationships of advisory committees with the Departments of Commerce, Interior, and Agriculture. On a solid base of such exploratory study legislation could be proposed.

Only if the problem is really nonexistent, or complex and expensive--both of which seem unlikely--should such highly important protective measures be dropped. Some fraction of our national protective investment ought to go for this purpose, on a balanced basis with the other four stockpiling objectives.



## ASSURING ECONOMIC STABILIZATION

Atomic attack would create conditions in which financial chaos, uncertainty, fear, and commodity shortages could shrivel our capacity to restore a functioning economy and mount production for victory.

To avoid these invitations to disaster, we must plan now the administrative arrangements required to keep the country operating in the post-attack period and to provide the essential foundation for wartime economic stabilization. Plans are needed:

1. To cushion the shock to the nation's credit structure.
2. To assure the requisite liquidity of bank deposits and other monetary claims.
3. To provide a flow of fresh credit to underwrite the continued operation of business concerns.
4. To furnish immediate money income to those unemployed by attack destruction and to the families of the dead, disabled, and missing.
5. To finance with minimum delay the rehabilitation of business and government facilities essential to the effective prosecution of the war.
6. To facilitate the decentralized administration of price, wage, rent, and rationing controls.

Private business management has important responsibilities for making plans to maintain or restore operations in the post-attack period. Government, particularly the federal government, in order to stimulate that initiative must provide the framework of laws, institutions, and administrative arrangements within which business will function. If private management is to assume the initiative in planning effectively to handle its operational responsibilities, it must have advance knowledge of what that framework will be.

Measures to underwrite and assure confidence in the nation's credit structure are of prime importance. The paralyzing effects of attack would not be confined to target areas. Judged by peacetime credit standards, temporary insolvency would be endemic.

Measures must be developed to assure the availability of bank accounts, including those in bombed-out banks. This goes beyond microfilming bank records. The Federal Reserve System and the Federal Deposit Insurance Corporation must stand behind destroyed or damaged institutions. In addition, provisions are needed under which accounts can be transferred from stricken to unbombed areas. Wage and insurance claims must be assured fulfillment.

Probably of equal importance, the government must be prepared to provide the credit support required to underwrite new customer-supplier arrangements throughout industry, despite uncertainty as to deliveries and markets. Devices such as government guarantees of loans and advances will be needed for both working capital and immediate construction credits to assure rapid rehabilitation without a lengthy process of claim reviews.

Finally, the destruction, injury, or displacement of millions of workers will require the maintenance of income flows for survivors and the unemployed. Existing unemployment compensation arrangements can handle only a fraction of this assignment.

If all these needs are to be met in the post-attack period--in the atmosphere of chaos and terror that would prevail--plans must be made in advance. Decisions are required not only with respect to the sources of funds and the levels of payments, but also with respect to wise and effective administrative machinery. And here, as elsewhere, plans, procedures, and personnel need testing under hypothetical attack conditions.

Even if all these measures were prepared and put into effect after an attack, primary responsibility for the economy's operation would continue to rest with

private enterprise. Corporations must therefore be prepared to shift managerial responsibility promptly to surviving officers and employees and to switch orders quickly from bombed-out suppliers and customers. Some of these plans can be prepared by individual firms, but others require industry-wide study and cooperation.

The problem of wartime controls to assure the stabilization of the economy might not, paradoxically, be as serious in atomic war as in World War II. The risk of that flight from money into goods that is so characteristic of inflationary economies might not arise. Too many incomes might have been cut off or shrunk and too many hazards would beset goods to encourage such a switch.

However, where the demand for food and other necessities in refugee-flooded areas promised to overwhelm local supplies, the pressure on local prices would be severe, and the government might have to intervene to prevent the continuous escalation of prices. This might be more readily achieved by drastic rationing measures than by price controls. Moreover, with the possible disruption of transportation and communication, economic stagnation and inflationary pressures might coexist in different sections of the country. A nationwide set of price, rent, and rationing controls would therefore probably be unworkable, and instead localized administrative authorities and general plans for their guidance would be needed.

To plan and establish the standby measures envisaged above, and to make the business public aware of them, would call for small money expenditures at this time. Far more needed are the time, thought, and extensive organized cooperation under informed leadership that must be contributed by public agencies, private industry, and financial institutions.



## MANAGING A DAMAGED ECONOMY

Two major problems cut across the entire range of the task of managing an economy that would be severely damaged despite the success of the third and fourth pillars of our national program--military and nonmilitary defense. One is manpower, and the other is the maintenance of effective civil government.

### MANPOWER

Our physical and financial resources, our industrial capacity and recovery potential, are of great size in relation to the strength and capacity of the enemy to inflict damage. But our manpower is limited.

There is no surplus manpower even among the unskilled and semiskilled workers who now make up the bulk of the labor force and who must also provide the bulk of the large armed forces which would be needed immediately after attack.<sup>f/</sup>

Shortages are acute among skilled workers and technicians, and are most critical among professional and scientific groups and trained administrators. Post-attack management of a damaged economy therefore would probably pivot on the availability of manpower.

Several recent studies of the manpower problem have analyzed its nature and magnitude. They have suggested both short-range and longer range measures to correct deficiencies.<sup>3/</sup> The conclusion of these studies need not be reproduced

<sup>f/</sup> Footnote by Ramsay D. Potts, Jr.: If a war of the type envisaged by this statement takes place there would probably not be an overriding requirement for 'large armed forces .... immediately after attack.' Atomic war would probably be fought with forces in being, rather than with later-mobilized forces. The following paragraphs of this section of the statement place great emphasis upon the importance of properly allocating manpower. Proper allocation of manpower may dictate assignment of personnel to civil defense and recovery tasks rather than to armed forces.

<sup>3/</sup> See, for example, the report on Manpower Resources for National Security, prepared by the Special Committee on Manpower Resources for National Security and submitted to the Director of the Office of Defense Mobilization (December, 1953); the National Planning Association's report on Manpower, the Nation's Resource; and three reports issued by the National Manpower Council of Columbia University: Student Deferment and National Manpower Policy, A Policy for Scientific and Professional Manpower, and A Policy for Skilled Manpower.



here. It need only be said that their recommendations and the hard, challenging effort to make them effective are of top importance in balanced and integrated security program.

In the face of known demand from industry, government, and the military services for scarce skills and experience--demands that would be increased in wartime--we still lack effective policy for the resolution of conflicting manpower claims which could be put instantly into operation after attack. It is precisely here that a deep four-way split in basic federal legislative and state government authority is the most patent and most in need of immediate correction.

First, neither in the enlistment process nor in procedures governing the calling up of reserves by the Department of Defense is there machinery for balancing industrial, government, civil defense, and other needs against military requirements for specialized personnel. It is particularly among reservists, of course, that the scarce talents are concentrated: engineers, scientists, doctors, executives.

Second, the Office of Defense Mobilization and other government agencies with delegated nonmilitary defense responsibilities are--as described in the accompanying report--setting up "executive reserves" of persons with training and experience, to be called back from industry and the universities in an emergency. <sup>4/</sup> ODM is also moving rapidly to erect a wartime management organization which would have as a prime responsibility the direction of manpower.

Third, under separate Congressional legislation, the Federal Civil Defense Administration and fourth, the forty-eight state governors, will automatically acquire powers to requisition and assign manpower immediately following an attack.

Amid this confusion of conflicting statutory powers, industry is also creating its own reserves of executives, scientists, engineers, and technicians,

<sup>4/</sup> See the NPA report on Needed: A Civilian Reserve, PP - 86. Recommendations of the NPA Special Committee on Manpower Policy and a Report by Helen Hill Miller. June 1954.

and assigning manpower to alternate chains of command in a praiseworthy effort to provide for continuity of management and production in an emergency.

Prompt and effective resolution of this tangle of potential authority over our most important post-attack resource is a prerequisite to sensible planning for overall management of a crippled country.

#### Effective Civil Government

We must contemplate the possibility of enemy attack on our domestic territory --a circumstance which in all its implications is beyond the present comprehension of most citizens. When we consider the paralyzing effect of such a blow, and the probable state of shock that would follow, we must face the question: where will the leadership be found to enable us to carry on, to recover, to organize the tools of victory?

How would our national government appear after an atomic attack? The regularly established organization, even up to the very apex, might be shattered. We should consider the problem of maintaining executive leadership, thus crippled. Nor can our form of government run long without congressional action. There is need to consider means for maintaining a representative Congress in spite of casualties. This is not merely a matter of form, of filling vacant places. National leadership rests upon moral and spiritual authority. How could such authority be sustained in the highest degree in time of greatest peril?

Consider the intricate levels of our governmental structure--national, state, regional, and local. Our people have preferred and have produced strong local autonomy. They have looked to Congress only with respect to those matters that concern several states. Nothing in our experience, however, has prepared us for the combination of individual resourcefulness and local initiative with overall unity of direction that a devastating attack would surely make necessary.

How could effective concentration of directive effort be attained? At the top, there must be sure direction, and, when necessary, the power of command.

Yet at the bottom the sturdy virtues of initiative and self-help must be maximized. It will take the greatest resourcefulness to adapt our system of federal-state relations to meet such a challenge.

That the judicial courts should continue in their normal functions, notwithstanding public emergency, has been a touchstone of liberty since long before our national independence. We regard this principle as fundamental. Yet in time of war, when executive regulation must largely take the place of legislation, and when official discretion must be given unprecedented scope, the maintenance of judicial enforcement of law presents serious problems.

But the need for maintaining strong and effective civil government will be paramount. There is good reason to fear that if adequate preparations are not made in advance, an attack disaster would perforce bring military administration in its wake. If the agencies of civil administration buckle under the burden of an attack, a cry would go up for the President and the state governors to declare martial law. This desperate expedient should be firmly rejected; but we can do so only if we prepare ourselves.

Martial law means that the only channel for communication between the stricken country and its directing centers would be lines of Army command. It would mean that the Department of the Army would have the responsibility for directing the activity of the entire civil populace in addition to its suddenly expanded responsibility for military operations. This would not only be a huge burden for the Army, but a basic error of the first magnitude. The nation would then be at war on a false pattern, from which it later could withdraw only with extreme difficulty.

Martial law at the state level would involve a partial shift to the same crude device at a time when and in locations where resourceful and imaginative administration would be most needed. The way to avoid such evils is to take

steps now to determine how our civil institutions can best be prepared to withstand a blow, and then to proceed, promptly but calmly, to make the needed preparations.

The critical requirement is for advance planning and testing, to discover effective civil administration procedures and working relationships. It will not be enough for every existing department and unit of government to have a sound plan for what each is to do after a devastating attack. There must be practice in working together, with representatives of military authority included. Only by practice and testing in advance can these varied groups learn to work in combination sufficiently well to forestall the collapse of the effective civil administration of what will be a chaotically disturbed economy.

Channels of direction, guidance, and command would have to be established among federal, state, and local governments, and with military commanders, calling for suppleness and intimacy in administration. Unlike the British with their unitary form of government in a tight little island, we with our sprawling federal-state structure have little experience on which to draw. There would be tremendous possibilities of friction if the Armed Forces alone were suddenly to begin directing operations normally within the scope of civil government, for this would bring them into daily contact with state and local administrations clinging to their own fragments of power. The same facilities of highways, transportation, communications, and shelter would be involved and, above all, the same human individuals who would be torn between conflicts of responsibility and authority.

These are two all-pervasive problems which overshadow the many detailed problems in creating an adequate structure to manage a severely damaged economy. The report explores the progress being made in other phases of this huge problem. As in the first three segments of our total undertaking to assure adequate nonmilitary defense, much more remains to be done than has been accomplished. It is to the righting of this dangerous imbalance that our recommendations are addressed.



### RECOMMENDATIONS OF THE COMMITTEE

To deal with the critical issues in nonmilitary defense of the United States outlined in this Statement, the Committee submits the following recommendations:

1. Provision should be made for coordination and direction under centralized responsibility of the nonmilitary defense program within the federal government.

Many departments and agencies of the federal government are now engaged in nonmilitary defense activities. The work lacks central direction and coordination. There is no clear legislative definition of areas of specific responsibility. Conflict of authority and responsibility stems from existing legislation that assigns fragments of nonmilitary defense activities to different agencies. To make the split worse, state governors and legislatures have segments of authority under the present Civil Defense Act.

The Office of Defense Mobilization is attempting to coordinate one major part of the nonmilitary defense effort. It is maintaining skeleton divisions capable of expansion in an attack emergency and is trying to push ahead with advance planning in many directions. This agency is inadequately staffed even to guide and coordinate all the programs which have been set in motion under its direction. It has necessarily had to supply these staff deficiencies by farming out assignments to other federal agencies. This cannot assure uniformly successful results.

Even more important is the fact that two other agencies with critical nonmilitary defense responsibilities--the Federal Civil Defense Administration and the Department of Defense--operate under their own legislation and report directly to the President. The Office of Defense Mobilization now has no authority even to coordinate, let alone to exercise control over, these divided activities.

This underlying legislative confusion should be removed promptly as a dangerous impediment to building an effective and integrated national defense effort. Major modifications need to be made in the National Security Act, the Federal Civil Defense Act, and the Defense Production Act. Other legislative changes may also be desirable, to specify explicitly the subordination of independent federal cabinet departments and agencies to a chosen central point of responsibility.

2. To explore means of remedying this dangerous situation and to advise the Congress and the state governors, a temporary "Nonmilitary Defense Commission" should be created.

This Commission should be appointed promptly by the President, with instructions to report within six months. Membership on the Commission should be comprised of distinguished citizens who are familiar with nonmilitary defense problems and who are willing and able to devote a substantial share of their time to the work of the Commission. They should be aided by an adequate staff.

The Commission should have the following assignments:

- a. To formulate the basic requirements of a comprehensive, national non-military defense program which will match in actual and potential post-attack effectiveness our diplomatic and military programs.
- b. To define a basis for integrating such a nonmilitary defense program with our military program, both before and after attack; this will involve particularly the two crucial problems of manpower use and effective civil government in a damaged economy, as well as a host of related problems and conflicts.
- c. To recommend an adequate organization structure in the federal government capable of coordinating and directing such a program.
- d. To specify the changes and adjustments in legislation, appropriations, and federal-state relations, which will be necessary to carry out the program.



3. To promote public understanding and acceptance of the importance of nonmilitary defense, and to provide a respected forum for discussion of its changing nature in future years, we urge the Board of Trustees of the National Planning Association to seek the creation of a "Nonmilitary Defense Council" under sponsorship and with financial support from one or more endowed foundations,

Government agencies can perform only a part of the whole job of creating and guiding a nonmilitary defense program which will make an essential contribution to the national security. In our free society a very large share of the task must be accomplished by business firms, labor unions and other economic organizations, by civic and voluntary groups, and by informed citizens who are, in many cases, especially organized for the job. These nongovernmental groups can help the government agencies with ideas and techniques which will strengthen the official program and give assurance of public support.

Such a Council should have a broad representation of leaders in management, labor, agriculture, state and local government, universities, professional and scientific groups, and citizens groups. It should be supported by foundation grants to assure its independence and the provision of a competent and resourceful staff.

The Council should have the following important functions:

- a. To promote public understanding of the nature and requirements of the nonmilitary defense program.
- b. To encourage and coordinate private research in nonmilitary defense problems.
- c. To encourage and coordinate efforts by individuals, agriculture, industry and labor organizations, and communities to do those things that can and should be done without government assistance and provide a balance of judgment on the appropriate roles to be played by all segments of our society.

- d. To aid federal agencies in working out cooperative arrangements with private and community agencies and groups to test and appraise particular features of the program before final adoption.
- e. To draft model legislation--for both states and municipalities-- required to facilitate and encourage an effective nonmilitary defense program at the local level.
- f. Perhaps of greatest importance, the Council should serve as a center of constructive thought and planning by nongovernment groups, to look ahead and anticipate the changing nature of the nonmilitary defense program as the nature and extent of the threat changes.



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## THE TASKS OF NONMILITARY DEFENSE AND THE PRESENT STATUS OF PLANNING

A Report by

William H. Stead

accompanying

A Statement on National Policy

A PROGRAM FOR THE  
NONMILITARY DEFENSE OF THE UNITED STATES

by

The Special Committee on Nonmilitary Defense Planning

of the

National Planning Association

OFFICERS: *Chairman*, H. Christian Sonne; *Chairman, Executive Committee*, Wayne Chatfield Taylor; *Vice Chairmen*: M. H. Hedges, Frank Altschul, Clinton S. Golden, Donald R. Murphy, Beardsley Ruml; *Secretary*, Arnold S. Zander; *Treasurer*, Harry A. Bullis; *Counsel*, Charlton Ogburn; *Assistant Chairman and Executive Secretary*, John Miller.

## FOREWORD

In securing background material for this report the writer has interviewed many of the major policymaking officials in the ODM, the FCDA, the Departments of Defense, Commerce, Agriculture, Interior, Labor, HEW, the Board of Governors of the Federal Reserve System and other departments and agencies having responsibility for aspects of the nonmilitary defense programs of the Federal Government.

In the course of these interviews much unclassified material was made available, and in several cases officials compiled special memoranda which summarized the present status of the work in their field of responsibility. Several industries and a few metropolitan communities that have nonmilitary defense plans of significance under way have been identified, and some descriptive materials have been obtained. The unclassified portions of such research project reports as Projects Lincoln and East River were also reviewed.

The writer is responsible for the factual material, the discussion of nonmilitary defense tasks, and the summaries of agency and industry programs in Chapters I to IV of this report. He wishes to express his appreciation for the friendly cooperation of the many officials and staff members in all of the agencies cited and for the help of many others who have contributed to this study, including the members of the NPA Special Policy Committee who did far more than is usually implied in such committee membership.

While the Committee approves the general point of view represented in the entire report, the Committee members accept direct responsibility only for the discussion of major issues and the recommendations in the foregoing Committee's Policy Statement.

William H. Stead

Washington

March 1, 1955



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I.  
The Role of Nonmilitary Defense in a  
National Security Program for the U.S.

The purposes of this report are to discuss our nonmilitary defense program in the United States, to try to bring to the public an understanding of the major tasks which make up this program, and to review the present status of nonmilitary defense planning, both in government and in industry.

The first questions which most people ask when the subject of nonmilitary defense is mentioned are usually these: What is meant by "nonmilitary defense"? Is it worthwhile in these days of nuclear weapons? What is its relationship to other aspects of our National Security Program?

In order to try to give some answers to these pertinent questions, we will discuss two topics in this chapter: The nature of the threat we face, and the current planning assumptions; the relation of nonmilitary defense to other phases of national security, and the feasibility of a nonmilitary defense program.

The Nature of the Threat

Much has been published with respect to the devastating effects of atomic and hydrogen bomb explosions, and the frightening possibilities of chemical and biological warfare weapons.

The chilling fact is that our only potential enemies, the USSR and her allies, have developed all of these weapons and are rapidly overtaking us in this horrifying armaments race. The latest intelligence estimates would seem to indicate that in hydrogen and atomic weapons we have a larger stockpile, but that they have enough to destroy us; in jet aircraft, guided missiles, and submarine striking power, they are probably our equals; and in chemical and biological warfare weapons they are not far behind.



While the writer makes no pretence of being either a nuclear scientist or a military expert, he has tried to secure from qualified sources an appraisal of the effects of fission and fusion weapon explosions that would serve the purposes of this type of policy discussion. <sup>1/</sup> Of course, no secret or classified material was made available for the purposes of this report, but it is believed that the following discussion represents a consensus of informed judgment with respect to the nature of the nuclear threat we face.

Essentially the new threat presented by the hydrogen bomb, as contrasted with the atomic fission bomb, is the size of the explosion.

Both fission and fusion explosions produce three terrible effects; blast damage; thermal (heat) radiation and fires; and nuclear radioactivity. The fusion explosions, being many times more powerful, greatly increase all three of these terrible effects.

With a nuclear bomb explosion there is a sizable area of total blast damage within which everything is destroyed -- and a larger area of partial blast damage. Second, there is terrific thermal (heat) radiation within the blast area, and resulting fire damage which may cover a wider area. Third, there is the deadly direct gamma and neutron radiation within the blast area, followed by the "fallout" of radioactive particles which have been blasted into a vast cloud by the explosion. These radioactive particles are dispersed by winds and air currents over a still larger area (downwind) until the "decay" of their radioactivity over time, and their increasing dispersal, removes the danger. It should be noted at this point, however, that terrible as these effects are, all three are limited and at least roughly calculable.

1/ This summary (like the briefer references in the Committee's Policy Statement) is based on the recent documents listed under "The Role of Nonmilitary Defense in Our National Security Program" in the bibliography accompanying this report.

In addition to consulting officials of Washington agencies working with these problems, the writer conferred with J. Robert Oppenheimer, Director of the Institute of Applied Studies at Princeton. The understanding was conveyed that in addition to the documents cited above, the type of information contained in the recent issues of the Bulletin of the Atomic Scientists presented the most reliable picture of these problems, including those Bulletin articles listed under "The Nature of the Threat" in the accompanying bibliography, with special emphasis on Dr. Ralph Lapp's two articles.



Blast damage is confined to a circular area including X square miles from ground zero of the explosion. Thermal (heat) radiation is also confined invariably to the blast area, although fires and fire storms may cover an additional area of X square miles, either circular or elliptical as affected by the wind.

The deadly direct gamma radiation is entirely confined to the blast damage area, while the fallout of radioactive particles occurs over a still larger elliptical area determined by the wind and air currents. This radioactive fallout is most dangerous close to the explosion site and decreases with distance, both because of dispersal of the particles and because the radioactivity of the particles decays quite rapidly for most substances.

Let us look a little more closely at these three effects of atomic explosions.

#### Blast Damage

From the point of view of the destruction of the sinews of our economic life (our vital manpower resources, our factories, public utilities and community facilities), perhaps the blast damage resulting from atomic explosions is the most serious immediate effect. Almost immediately after a nuclear explosion, expansion of the hot gases initiates a pressure wave in the surrounding medium and a very destructive shock wave is transmitted outward from the point of explosion. In the case of an air burst, the blast effects of this shock wave are generally more important in producing destruction than are the effects of thermal and nuclear radiations.

The effects of the blast are the result of two factors: the over pressure and the resulting short-lived winds. The blast effects will cause complete destruction within a radius of X distance from ground zero (depending on the size of the bomb). Outside of this radius, the danger arises from collapsing buildings and from the fact that the winds accompanying the blast wave may convert objects into missiles.



The most extensive blast damage will result from flying debris. Beyond the radius of total destruction, therefore, adequate shelters would protect people from the collapsing buildings and flying debris. The range of blast damage from a nuclear explosion varies as the cube root of the size of the bomb: a 1000 x bomb damages at 10 miles as a 1 x bomb at one mile.

The following three tables, taken from pages 22 and 23 of the Report of the Civil Defense Committee of the Life Insurance Association of America, show the varying extent of blast damage with different size bombs.

Table I shows the radii of the four zones of blast damage as measured from ground zero (the point on the ground directly below the explosion) for four different sizes of nuclear bombs. The 1 x bomb represents the nominal atomic bomb that was used at Hiroshima and Nagasaki. The 25 x bomb is representative of a very large atomic bomb, as referred to in the President's address before the United Nations. The last two columns are examples of hydrogen bombs in the megaton range.

Table I  
Radii of Zones of Blast Damage by Size of Bomb  
(in miles)

Zone of Blast Damage	1 x Bomb (20 kilotons or 20,000 tons TNT)	25 x Bomb (500 kilotons or 500,000 tons TNT)	100 x Bomb (2 megatons or 2,000,000 tons TNT)	500 x Bomb (10 megatons or 10,000,000 tons TNT)
Zone A (virtually complete destruction)	0.5	1.5	2.3	4.0
Zone B (Severe damage) <u>1/</u>	1.0	2.9	4.6	7.9
Zone C (moderate damage) <u>2/</u>	1.5	4.4	7.0	11.9
Zone D (partial damage) <u>3/</u>	2.0	5.9	9.3	15.9

- 1/ Most buildings would be damaged beyond repair.  
2/ Moderate damage to buildings, requiring vacating them for repairs.  
3/ Partial damage to buildings, not requiring vacating them, for repairs.

It can be seen from Table I that the radius of a particular damage zone increases in proportion to the cube root of the increase in size of bomb. For example, the cube root of 500 is about 8 and the radii for a 500 x bomb are about 8 times as long as the corresponding radii for a 1 x bomb.

Table 2 shows the areas of the four zones of blast damage under the same conditions as those specified for Table I. The area of Zone A represents the area of the inner circle of virtually complete destruction, etc.

Table 2  
Areas of Zones of Blast Damage by Size of Bomb  
(In square miles)

Zone of Blast Damage	1 x Bomb (20 kilotons)	25 x Bomb (500 kilotons)	100 x Bomb (2 megatons)	500 x Bomb (10 megatons)
Zone A (virtually compl. destruction)	0.3	6.7	17	50
Zone B (severe damage)	2.3	20.4	51	149
Zone C (moderate damage)	3.9	34.0	84	243
Zone D (partial damage)	5.5	47.7	113	346

Table 2 indicates that the size of the area in which moderate and partial damage occurs is more than 10 times as large as the area of virtually complete destruction. This relationship holds regardless of the size of the bomb. For example, for a 500 x bomb, the combined area of Zones C and D is 594 square miles as compared to the 50 square miles of Zone A. It is primarily because of this feature that effective civil defense measures can produce significant reduction in the number of casualties and the amount of physical damage regardless of the size of the bomb.

Tables 1 and 2 indicate the extent of physical damage. Some idea of the number of casualties which would result from a nuclear bombing can be obtained from Table 3. The area of destruction is divided into the same zones used for Tables 1 and 2. The size of each zone increases as the strength of the bomb is increased, as indicated in Tables 1 and 2.



Table 3

Average Number of Casualties per 100 Persons in Area

Damage Zone	Deaths		Surviving Casualties		Uninjured	
	Attack Without Warning	Attack With Warning	Attack Without Warning	Attack With Warning	Attack Without Warning	Attack With Warning
Zone A	90	75	10	15	0	10
Zone B	50	30	35	20	15	50
Zone C	15	5	40	25	45	70
Zone D	2	1	18	9	80	90

Any estimates of casualties must of necessity be rather crude because they are affected by factors such as the types of buildings in a particular area, the existence of shelters, and the definition of a casualty. While the figures in Table 3 represent broad averages, they do indicate that warning can reduce deaths and surviving casualties in the zones of severe, moderate, and partial damage by a factor of about 50 percent. ~~These charts are based on casualty estimates for a selected area in New York City.~~

#### Thermal (Heat) Radiation and Fire Damage

A second fearful result of a nuclear explosion is the release of a wave of thermal (heat) radiation which covers much the same area affected by blast damage, at an even more rapid rate. The explosion produces a temperature equivalent to that of the interior of the sun (a million degrees centigrade). In the case of an air burst, the air itself becomes heated to incandescence and, after a few millionths of a second, a luminous sphere (called the "ball of fire") appears. The ball of fire increases in size and, after .0001 second, the radius of the ball of fire is some 45 feet and the temperature is then in the vicinity of 300,000<sup>o</sup> C. (more than 50 times greater than the surface temperature of the sun).

The ball of fire expands very rapidly to its maximum radius of 450 feet within less than a second after the explosion. After about 10 seconds from

detonation, when the luminosity of the ball of fire has almost died out, these immediate effects of the bomb may be regarded as over. At its peak the ball of fire, as observed from a distance of 5.7 miles, has a luminosity 100 times that of the sun as seen at the earth's surface.

The blanket of air molecules that covers the earth has protected life on the earth from the extreme ultraviolet radiation of the sun. This same air blanket protects also against the thermal radiation of a nuclear explosion. In addition, particles of dust, water vapor and droplets absorb and scatter thermal radiation. Hence, a sufficient distance of atmosphere can protect against the thermal effects of a nuclear explosion.

The effects of the thermal flash on people is to produce a sunburn that at closer distances (e.g., less than two miles from ground zero for an explosion of a nominal bomb on a fairly clear day) becomes a serious third degree burn. Clothing and other fabrics, wood and similar combustible materials may char or burst into flames. These direct effects of the thermal flash can be prevented if opaque material provides a screen or shield between the explosion and the person or object.

It is much more difficult to predict the incendiary effects of the fires that develop. The extent of these fires depends on the number of point sources of fire that remain after the blast has passed, and on the characteristics and configuration of the combustible materials. Not only does the thermal flash serve as a match to start fires, but secondary causes add to the problem, such as upsetting of stoves, electrical short circuits and broken gas lines. In an urban area a great number of fires may be started and if they continue and coalesce a fire storm may develop, with the great heat producing a gigantic upward draft. Such a fire storm may utilize all the oxygen at ground level -- adding another hazard. The General Motors fire at Livonia, Michigan, on August 12, 1953 proved that all that could be done in such



a case was limited to the perimeter of the fire storm. Property damage in this one case was \$50,000,000. Table 4 shows the estimated areas of thermal radiation damage for different size bombs, under four assumed atmospheric conditions.

Of course fire damage may spread into other areas. The total area of thermal radiation damage is divided into three zones by means of concentric circles. The innermost zone (Zone A) is that area in which the amount of thermal radiation energy delivered per unit area is 10 or more calories per square centimeter. In this zone of severe damage there will be incendiary action, and materials like white paper, wood, and clothing will be ignited and burn. The next zone (Zone B) is that area in which the amount of thermal radiation delivered ranges from 10 to 3 calories per square centimeter. In this zone of moderate damage, white paper and wood would be charred, clothing would be scorched, and human beings would receive severe to moderate skin burns on exposed parts of the body. Zone C is the area in which the amount of thermal radiation delivered ranges from 3 to 1 calories per square centimeter. In this zone of light damage, the effect on human beings might range from moderate skin burns to a slight sunburn.

Table 4

Areas of Zones of Thermal Radiation Damage by  
Atmospheric Conditions and Size of Bomb  $1/2$

Zone of Thermal Radiation Damage Calories per square centimeter.	1 x Bomb (20 kilotons)	25 x Bomb (500 kilotons) (visibility about 2 miles)	100 x Bomb (2 megatons)	500 x Bomb (10 megatons)
Zone A (10 or more)	2 sq. mi.	9 sq. mi.	17 sq. mi.	27 sq. mi.
Zone B (10-3)	2	6	8	11
Zone C (3-1)	3	7	9	12
		(visibility about 6 miles)		
Zone A (10 or more)	3 sq. mi.	26 sq. mi.	50 sq. mi.	95 sq. mi.
Zone B (10-3)	5	20	31	47
Zone C (3-1)	7	27	39	55
		(visibility about 12 miles)		
Zone A (10 or more)	4 sq. mi.	47 sq. mi.	103 sq. mi.	220 sq. mi.
Zone B (10-3)	8	46	81	134
Zone C (3-1)	14	60	107	164
		(visibility about 25 miles)		
Zone A (10 or more)	5 sq. mi.	74 sq. mi.	187 sq. mi.	460 sq. mi.
Zone B (10-3)	10	93	186	351
Zone C (3-1)	22	152	272	459

\*See next page for footnotes 1 and 2.



1/ General Aspects of Civil Defense, Report of the Committee on Civil Defense of the Life Insurance Association of America, New York, December 6, 1954. Page 63

2/ Attenuation Coefficients (atmospheric conditions) and their relationship to visibility are discussed in The Effects of Atomic Weapons, Revised, Los Alamos, Laboratory of the AEC, U.S. Government Printing Office, Washington,

### Nuclear Radiation Damage

Here again we face a two-fold threat, the immediate effect of direct radiation in the blast area, consisting of neutrons and gamma rays, and the "fallout" of radioactive particles from the bomb cloud.

The effects of nuclear radiation differ from thermal and blast damage in that the human senses cannot readily detect the presence of harmful radiation, even in fairly large amounts. The nuclear radiations can produce harmful effects on human beings depending upon the quantity of radiation absorbed, determined largely by the distance from the explosion. If the amount absorbed is large, the consequences will probably be fatal; if it is not very great, there may be serious illness with various unpleasant symptoms, but apparently complete recovery takes place within six months.

Direct Gamma and Neutron Radiation -- The initial nuclear radiation effects of an atomic explosion in the air result from gamma rays and neutrons emitted within a minute of the explosion. Both of these forms of nuclear radiation have considerable penetrating power, so that ordinary clothing does not provide any protection against them.

The gamma rays are the major cause of harmful radiation effects. The intensity of radiation depends both on the inverse square law for the decrease of intensity with distance and on the attenuation due to scattering and absorption in the atmosphere. The radiation dosage produced by gamma rays is measured in terms of a unit called the Roentgen (a unit familiar in X-ray technology). It is the

total, accumulated dosage that determines the amount of damage, provided that the dosage is not spread out over so long a time interval (weeks or months) that there may be partial recuperation from the early exposures even while the later exposures are in progress. An LD-50 dose is defined as a lethal dose for 50 percent of the "average" population exposed.

Tests have indicated that a radiation dosage of 400 Roentgens (dosage at distance of about 4,000 feet from explosion of a nominal bomb) would probably prove fatal to 50 percent of the people so exposed. For lesser exposures, down to perhaps 50 Roentgens (dosage at distance of about 5,500 feet from the explosion of a nominal bomb), there would be some unpleasant injuries and perhaps disabilities for less than 50 Roentgens no serious injuries are likely. The radiation dosage falls off very rapidly with distance or, conversely, the LD-50 distance increases very slowly as the magnitude of the bomb increases.

Neutrons behave quite differently than gamma rays in that they undergo a random collision type of process. In general, neutrons from an air burst of a nominal atomic bomb would be lethal to unshielded persons at distances up to about one-half mile and normally do not present any additional hazard to the effects of gamma rays. The lethal area of neutrons increases fairly slowly with the energy of the bomb.

Residual nuclear radiations (i.e., those emitted more than one minute after explosion) arise primarily from two sources. The first source consists of the radioactive products of the nuclear explosion. These give off alpha, beta, and gamma rays, of which the gamma rays are the most important as a cause of casualties. If the explosion takes place some distance above the surface of the earth or water, most of the radioactive products would be dissipated, and hence should cause little or no harmful effects. The second source is induced radio-activity resulting from neutron bombardment of materials on the surface of the earth.



As the neutron intensity at the earth's surface decreases rapidly with increasing distance from the bomb, this induced radioactivity would probably not be significant if the explosion takes place some distance above the surface of the earth or water.

Table 5 shows the radii of the three zones of initial gamma radiation as measured from ground zero and the areas of the three zones. While the figures in Table 5 are probably only very rough estimates of the zones of initial gamma radiation, they clearly indicate that the sizes of the zones increase rather slowly as the magnitude of the bomb increases. For a possible 500 x bomb, the range of significant initial gamma radiation is only about 3 miles as compared to a range of about 16 miles for blast damage.

Table 5

Radii and Areas of Zones of Initial Gamma Radiation by Size of Bomb<sup>1/</sup>

Zone of Initial Gamma Radiation	1 x Bomb (20 kilotons)	25 x Bomb (500 kilotons)	100 x Bomb (2 megatons)	500 x Bomb (10 megatons)
r = Roentgen		Radii of Zones		
Zone A (600 or more r)	0.7 mi.	1.2 mi.	1.4 mi.	1.8 mi.
Zone B (600r - 400r)	0.8	1.3	1.5	2.0
Zone C (400r-100r)	1.0	1.5	1.9	2.3
		Areas of Zones		
Zone A (600 or more r)	1.5 sq. mi.	4.5 sq. mi.	6.2 sq. mi.	10.2 sq. mi.
Zone B (600r-400r)	0.5	0.8	0.9	2.4
Zone C (400r - 100r)	1.1	1.8	4.2	12.0

<sup>1/</sup> General Aspects of Civil Defense, Report of the Committee on Civil Defense of the Life Insurance Association of America, New York, December 6, 1954. Page 64.

Radioactive Fallout. -- With the recent publication of the AEC statement on fallout, the public is becoming fully aware of this tremendous hazard. We now know that an H-bomb of the Bikini type could spread the radioactive cloud of particles from the explosion over an elliptical or cigar shaped area of some 7,000 square miles downwind from the explosion, roughly the size of New Jersey. However, it is



equally important to know the limitations on this fallout danger and that protection can be found against it.

In addition to the AEC statement, which every American should study with care, it is believed that the following excerpts from an article by Dr. Ralph Lapp <sup>1/</sup> provide an excellent summary of the major problems occasioned by the fallout danger:

Once the bomb explodes and the heat-blast waves have run their course, we have to consider the fate of the bomb cloud. If the bomb is burst high in the air so that there is no significant cratering effect, the bomb cloud will contain only such surface debris as is sucked up into the ascending column. In this case, the cloud radioactivity consists predominantly of split uranium or plutonium atoms (technically called fission products) which are intensely radioactive. Two factors take their toll in reducing the menace of this activity. One -- the high velocity upper air winds disperse the fine (usually invisible) particles in the bomb cloud so that they are dispersed over a very large area before they finally settle out and come to earth. Two -- radioactive decay sharply reduces the activity on the following time schedule:

Time (after burst)	Radioactivity (arbitrary units)
1 minute .....	1,000,000
1 hour .....	7,300
1 day .....	162
1 week .....	16
1 month .....	3

Assuming that there were no mass deposits of radioactive debris in the early history of the bomb cloud, then we would have to relegate the problem of cloud activity to the controversial area of global atmospheric contamination and human genetics.

Superbombs which burst close to the surface present quite another problem. In this case, the  $3\frac{1}{4}$  mile wide fire-ball of a 10-megaton bomb introduces a radically new factor into the fallout equation. Much of the substratum below the exploding bomb is dislodged and volatilized into particles impregnated with radioactivity. In addition, some of the elements in the substratum may become radioactive by the primary penetrating radiation from the bomb. Sodium in sea water, for example, is easily activated (made radioactive) and can become a hazard. The pulverized substratum is funneled upward much in the manner of a cyclone. In this way, the coral and sand of a low-lying Bikini atoll island were sucked up into the bomb cloud ...

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<sup>1/</sup> Ralph E. Lapp, "Civil Defense Faces New Peril," Bulletin of Atomic Scientists, November, 1954.



It is like seeking the Holy Grail to quest for hard data on the fallout as applied to an American city. The unknowns enumerated above make prediction of the fallout a highly tentative business. About all one can hope to do is to define what might happen. Assuming a 15 megaton superbomb burst close to the ground the author has made the following estimates 1/ for the fallout ellipses:

<u>Time</u> (after burst)	<u>Area</u>	<u>Average</u> <u>Intensity</u> (gamma radiation)
1 hr.	250 sq. mi.	2500 roentgen /hr
3 hr.	1200 sq. mi.	200 roentgen /hr
6 hr.	4000 sq. mi.	30 roentgen /hr

(In his February 1955 article, "Radioactive Fall-out," Dr. Lapp uses later data to expand the areas of fallout to about twice the size estimated here.)

It must be remembered that this fallout will occur downwind. Upwind for 15 miles and sideways for 20 miles the fallout should not be lethal. Integration of the dosage rates for the 4,000 square-mile area leads to the conclusion that people will receive a serious to lethal dose in the first day. The area and hazard represents a conservative calculation. The radioactive hazard is truly immense. The explosion of 50 superbombs could blanket the entire N.E. USA in a serious to lethal radioactive fog.

A schedule for the effects of external radiation upon a man in the open is as follows:

<u>Roentgen Dose</u> <u>2/</u>	<u>Effect on Man</u>
50 to 100 r	Few percent casualties
150 to 200 r	50 percent casualties
200 to 300 r	100 percent casualties plus some mortality
400 to 500 r	50 percent mortality
700 r	Close to 100 percent mortality

Applying the 500 roentgen criterion to the fallout pattern at 1 hour after the bomb burst it is clear that an individual within the 2,500 r/hr area would accumulate this dose in 12 minutes. At 3 hours a person much further downwind might be exposed to a very serious dose. Here we must consider the relation between the intensity of the radioactivity at the time of exposure. Fortunately, the process of radioactive decay reduces the intensity quite sharply as time goes by. However, one must seek shelter as a protection against the radiation if caught in a near-lethal area. That is, unless some means is provided to direct downwind populations out of the path of the fallout.

- 1/ The shape of the elliptical areas will depend upon the nature of the winds aloft. The ellipses at 1, 3, and 6 hours may show some overlap.
- 2/ Delivered in a period of less than 1 hour. If delivered over several days the required effect dosage is doubled.



Just what kind of shelter protection is required? The answer depends upon how close to ground zero one locates the shelter since blast then becomes the criterion. Assuming, however, that the shelter is located beyond the range of primary blast, the radiation shielding requirements are as follows:

Reduction Factor	10	50	100	1000
Inches of concrete	6	11	13	19
or inches of packed soil	11	18	21	30

The relatively small thickness of concrete or earth shielding needed to reduce the incident radiation to one-hundreth of its topside value may surprise the layman. Exponential absorption of gamma radiation accounts for the fact that a foot and a half of hard packed soil can reduce an intensity of 2500 r/hr to 50 r/hr. Thirty inches of soil cuts this intensity down to 2.5 r/hr which can be regarded as acceptable for survival in a shelter.

\* \* \*

In addition to the external radiation hazard there is the enigma of ingested or inhaled radioactive debris. Judging from the brief reports issued by the Atomic Energy Commission on the medical histories of the Marshall islanders exposed to fallout, the internal radiation hazard may be less serious than generally believed. However, data on the Japanese survivors ... does not make for complacency on the significance of radioactive material taken into the body.

From the foregoing description it can be readily appreciated that fallout presents civil defense with potentially greater perils than those of heat and blast ....

Civil defense must reckon with the hazards of fallout, but it would be utterly disastrous if it abandoned its policy of evacuation (or of dispersal of facilities) at this time. No one is going to come up with a perfect civil defense plan. As long as we have such huge agglomerations of people on a few bits of territory there can be no perfect civil defense. There will always have to be the element of the calculated risk to civil defense just as there is for the soldier at the front line. What civil defense must do is to acknowledge certain risks in its planning.

#### Current Planning Assumptions.

As of June 16, 1954, the Federal Civil Defense Administration issued a set of planning assumptions for the fiscal year 1955, for the guidance of all agencies concerned with nonmilitary defense planning. The Scientific Advisory Committee to the FCDA revised these assumptions in a statement January 1955.



Briefly they are as follows:

Enemy Capabilities:

The U.S.S.R. is now capable of attacking any target within the U.S. with nuclear weapons and the ratio of their power to ours is steadily increasing. We must assume that their ability to make and deliver weapons of all types at least keeps pace with our own.

Delivery

At present, the most reliable and accurate means of weapon delivery is the long-range aircraft. Submarines, launching guided missiles with atomic warheads, may be used to attack coastal cities. The possibility of detection or defection makes it unlikely that the enemy would use saboteurs to deliver many atomic weapons.

An aerial attack in sufficient force to super-saturate our defenses is most probable and an important percentage of the attacking aircraft can be expected to get thru to their targets. Prospective losses will require the enemy to "double up" on prime targets and have means of changing target assignments of surviving planes, possibly resulting in greater warning time and lower accuracy.

The scale and nature of the follow-up attacks cannot be accurately estimated, since they depend on the enemy objectives and on the success of their initial and our retaliatory attacks. We must assume that some sort of recurring attacks would be launched.

Intercontinental Ballistic Missiles (IBM) with atomic warheads may be a threat within a decade. Such missiles will almost certainly be less accurate than conventional bombers and will reduce warning time to a few minutes.

With respect to these two assumptions as to enemy capabilities and means of delivery, on June 15, 1954, Donald A. Quarles, Assistant Secretary of Defense for Research and Development, made the following comment in a talk to the U.S. Chamber of Commerce Conference on Industrial Defense:

So far as the delivery of these weapons is concerned, the Russians have about a thousand TU-4 bombers. These are copies of our B-29 and we believe have similar performance characteristics.

Another possible form of delivery is by a missile. Going back to World War II, the German V-2 missile was an operational weapon with a range to the order of 150 miles. Although it was very inaccurate, it did much damage as used against cities like London and Antwerp. After the war, the United States experimented with this type of weapon. Many were fired at our test grounds. I am sure that you have seen pictures of them.

Recently, in this field of surface to surface guided missiles, the Army's CORPORAAL was announced. It can deliver an atomic warhead. The Navy has successfully tested the REGULUS for use by ships. In fact, the submarine TUNNY has already been modified to enable it to launch the REGULUS.

We know that Russia took over many of the German scientists from their missile development center at Peenamunde; and also that she has shown much interest in submarines. Here again, she has had access to all the GERMAN accomplishments in that field. Without knowing any more about Russian activities than that, would it not be prudent to assume that they could have some capabilities in this area? Of course, we could be in error if we tried to predict the exact timing of their work, the range and the power of their weapons; but the inferences are obvious. In this speculation we must not rule out the possibility, at some future date, of intercontinental missiles.

#### Weapons

Since the thermonuclear bomb is the most effective weapon of sudden mass destruction, it is assumed that the enemy would rely mainly upon it -- using sizes necessary to insure virtually complete destruction of the selected targets. It is further assumed that the use of biological and chemical weapons would be attempted. Large thermonuclear weapons might be used for the express purpose of creating a radiological hazard. Concurrent psychological warfare would probably be conducted to disrupt the defenses and weaken our will to resist.

#### Time of Attack.

Certain times of the day and seasons of the year may be more favorable than others for an attacker; however, he can be expected to forego this advantage in order to achieve maximum surprise. The possibility of an attack in any season, either day or night, must be assumed.



### Targets

It is assumed that the enemy would make his initial assault against the Strategic Air Command bases to prevent retaliation and against some or all of the 70 Critical Target Areas <sup>1/</sup> since the return per bomb in damage and casualties would be greatest there. It is assumed that each of the 92 principal cities in the Critical Target Areas could be struck by at least one bomb of appropriate yield and that the daytime centers of population would be the aiming point within each city. Each of these cities (as well as the 123 target areas which are regarded as having a lower probability of being hit) must be as fully prepared as possible even though they may not actually be struck at the same time, and possibly some may not be struck at all.

Great areas of the country which are not direct targets are likely to receive dangerous radioactive fallout caused by the bombing of military or civilian targets at a considerable distance up-wind.

### Duration of Attack and of War

It is assumed that an enemy attack by air will be en masse and will result in a great splatter of bombs within a few hours. Persons evacuating or taking shelter can be reasonably sure that if their own locality is not hit, they will be allowed to return to their homes as soon as the attack is over if no serious radiation bars the way. After the first all-out attack, smaller raids (perhaps for psychological warfare purposes) can be expected at irregular intervals until the issue is decided.

A nuclear war, following reciprocal attempts at a knockout blow, will probably be fought with the materials on hand. If governmental and credit centers and some of our great industrial complexes are destroyed there will be a greatly reduced chance of recovering production of war materials before the war is over.

1/ Federal Civil Defense Administration, Target Areas for Civil Defense Purposes, July, 1953.



The U.S. must have a civil defense which can maintain a fighting spirit by alleviating hardships and keeping the people informed of the truth throughout a period of war -- and the enemy must know it beforehand -- so that he is not encouraged to apparent softness to gamble on a quick surrender. In this way, civil defense is a real partner to military defense in deterring an attacker.

The Over-all Problem of Providing an  
Adequate Defense of the United States

In the face of the above assumptions and the nature of the threat we face, the overriding question of today is whether Western civilization can survive in the nuclear age. The possibilities of survival depend, we believe, on the success of four interrelated U.S. programs or policies: first, the development of a positive nonmilitary international program; second, the provision of a powerful military offensive potential; third, the provision of an adequate military defense of the U.S.; and fourth, the development of a program of nonmilitary defense of the U.S.

Failure on any of these four fronts could be disastrous, yet this nation up to now has been relying primarily on the second and to a lesser extent on the first program. Even here we are not on completely safe ground. Our military offensive potential, while gaining strength, is apparently not gaining relative to that of the Soviet, and it is alarmingly clear that we are losing in the nonmilitary struggles for the support of the peoples of the earth. As to the third program, in the opinion of such authorities as the scientists of Lincoln and East River Projects, we do not have the military defense program for the U.S. that we could and should have. However we may differ on the effectiveness of the first three programs, we are all aware that our nonmilitary defense program is weak and lagging. While it is not the purpose of this paper to discuss in any detail the issues involved in



the first, second, and third programs, some additional comments with respect to them are necessary as background for the examination of the problems of developing a program of nonmilitary defense of the U.S.

#### The Development of a Positive Nonmilitary International Program

This is an urgent requirement of U.S. national policy.<sup>1/</sup> No free people wants either war or the semislavery of an Iron-Curtain dictatorship. However, hundreds of millions of people in the economically underdeveloped nations of Asia and Africa (and even in Latin America) are running the risks of both of these disasters. They are running these risks because they are uncertain of two vital matters.

First, they are not strongly convinced of the merits of Western democracy, politically, socially, and economically, as contrasted with communism. This partly reflects the effectiveness of Communist propaganda, but it also indicates lack of a positive Western offensive in the areas of idea and potential economic development.

Second, they are not convinced that the Western nations have the potential military strength or the determination to counter the threats of the Communist powers. Since many of them are directly in the path of a potential aggression and would suffer the effects of an all-out war, they are driven to "neutralism" or to possible collaboration with an anticipated Communist victor.

In the first years after World War II, the Western nations, and particularly the U.S., embarked on a positive international program to maintain peace and to win the support of the peoples of the lesser developed and uncommitted nations of the world. The United Nations and its affiliated organizations offered a hope that enlisted the support of these peoples, and the American Marshall Plan and Point Four Programs were elements in a real nonmilitary offensive by the democracies. Unfortunately, recent developments seem to have weakened this offensive without offering adequate alternatives. One important positive move in this area was

<sup>1/</sup> For able discussions of the urgency of this problem see: "International Control of Armaments" by David F. Cavers and articles from the Bulletin of the Atomic Scientists as listed under "The Role of Nonmilitary Defense in Our National Program" in the bibliography accompanying this report.



President Eisenhower's atomic pool proposal, potentially an extremely significant move, but one which has not been implemented effectively to date. Economic aid under the Marshall Plan concept has largely given way to military aid with sharply limiting provisos, the Point Four assistance has not expanded as originally planned. Moreover, our propaganda efforts have been limited in amount and relatively ineffective.

Yet in this area lies the best hope of preventing war. The threat of military power may deter aggressors, but it will not gain the allegiance of doubtful peoples nor will it offer any opportunity to undermine the support of the aggressor nations. An international propaganda offensive is needed to accomplish these tasks, one consisting not only of words and ideas, but also of deeds in the form of needed economic and technical assistance for those peoples striving to attain higher standards of living and greater economic and political stability.

This program to strengthen U.S. leadership in international affairs should take two forms.

The first is a continuing effort to keep open all possible lines for peaceful negotiation of issues with the Communist World, looking toward the ultimate objectives of an enforceable agreement on disarmament, and workable arrangements for assuring regional and world agreements to promote economic and political stability. The Eisenhower Administration is committed to such a policy and fortunately the Democratic opposition in Congress is similarly minded -- so we may anticipate a genuine effort to seek peaceful means of coexistence.

The second requirement is to strengthen the weak spots in the Free World, by an expanded program of Point Four assistance and a variety of efforts to build up the economic and political strength of the underdeveloped areas of the Free World. Again, the Administration seems to be heading in this direction, but in very modest terms. The writer believes greater emphasis should be given these vital programs, including increased financial support.



### The Provision of a Powerful Military Offensive Potential

This is probably the first essential of survival in this uneasy age of nuclear weapons. Unless the military offensive potential of the U.S. and her allies at least equals, if not exceeds, that of the Soviet nations in all basic essentials, it will not serve as a deterrent to war, which is its prime purpose in democratic nations. In light of this requirement some of the recent policy changes in this area are disturbing. We have slowed down the rate of our military buildup. Moreover, in shifting from a policy of "military containment" to one of the threat of "massive retaliation" by nuclear weapons, we appear to be left vulnerable to a progressive series of probing attacks and gradual losses of valuable areas and allies. The threat of massive retaliation with atomic weapons may restrain massive attacks on the U.S. but, as General Matthew B. Ridgway points out, only armies with naval and air support can prevent the types of aggression and conquest we had in Korea and Indochina. Massive retaliation implies massive attack and it is increasingly clear that we intend no massive retaliation for local nibbling aggressions.

It would seem that if our military offensive potential is to be adequate to meet the varied threats offered by our possible enemies the "new look" will need careful reexamination. Economy should not be the controlling consideration in this vital matter. The security of the nation must be the primary concern.

### The Provision of an Adequate Military Defense of the U.S.

In stressing the need for a more effective military defense program, there is no intent to suggest that our military posture is all offense and no defense. All of the armed services have given attention to the problems of military defense of the U.S. and Secretary of Defense, Charles E. Wilson has recently announced a stepping-up of the continental defense program including the designation of a

unified command for the U.S. theater and planning for coordination of military defense with the programs of nonmilitary defense. Nevertheless, in the opinion of many qualified observers, the military defense program needs considerable strengthening.

The scientists of Projects Lincoln and East River, who have probably given these problems the most extensive study (outside of the scientists of the military departments), expressed the view that our military defense program was inadequate and that it could and should be greatly strengthened. They went further and stated that unless military defenses could be strengthened to a point where some 75 or 80 percent of the attackers were repelled, and the civilian population could be reasonably assured of adequate warning time (from one hour to three hours), a real program of nonmilitary defense would not be feasible. Recently greater emphasis has been given to the development of our "continental" defenses, although much remains to be done if we are to be equipped with an adequate military defense. If, as at present, 70 percent of the attacking planes, missiles, or submarines would reach their targets, and warning times were short or nonexistent, initial attacks would be so devastating as to make many nonmilitary defense measures ineffective. An adequate military defense system for the U.S. will be expensive, but of what avail is a massive retaliation on the enemy if our own cities and industrial facilities are almost entirely laid waste?

These three programs, a positive program of international relationships, a strong military offensive potential, and an adequate military defense of the U.S. are thus prerequisites for the success of the program we are here concerned with -- the nonmilitary defense of the U.S.

#### The Development of a Program of Nonmilitary Defense of the U.S.

The fact that the U.S.S.R., has both the atomic and hydrogen bombs and the capacity of delivering these weapons on targets in the United States has brought



about a whole new concept of national defense planning. For more than one hundred and fifty years defense against enemy attack was regarded essentially as a military problem, largely theoretical in character. But with the nation known to be vulnerable to a determined enemy attack, planning for the national defense of necessity has become a nonmilitary as well as a military problem. For the first time in our history we are forced to devote serious attention to formulating plans for restoring our enemy-destroyed industrial power in order that our military forces might carry out their function of defending the nation and of waging an offensive war.

This involves a highly complicated planning problem, because to rehabilitate industry under such conditions would also require the restoration of communities and their facilities; provision for continuity of government; rechannelling the flow of equipment, materials, and manpower; restoration of banking and credit; provision for the maintenance of individual income -- in effect, the restoration of the economy to a minimum functioning level.

It is essential, then, that planning for nonmilitary defense be on the broadest base possible, encompassing all aspects of our economic and social system. To do so requires the best efforts not only of the Federal Government, but of state and local governments, private agencies, industry, labor, and all other major groups having a vital interest in the defense of the nation.

Despite this situation, not all Americans are convinced that a major national program of nonmilitary defense is essential. There is, first of all, a substantial group of people who believe that the threat of war is waning and therefore it is not urgent to devote major attention to such problems as economic rehabilitation following atomic attack. Many well-informed persons in this country hold this view and they point out that this conviction is a common and growing one in Europe and Southeast Asia. The so-called "neutralism" of important groups in these areas is based on this belief.



A second viewpoint, which seems in part at least to underlie the current "new look" of our military posture, is that with the development of the newer nuclear weapons and the reappraisal of their potential destructive power, emphasis should be primarily, if not almost entirely, on building offensive military strength. The argument runs that if we are to counter the U.S.S.R., potential in nuclear weapons, we must concentrate our necessarily limited funds on equipping all elements of our offensive forces with the latest of these weapons and must accept a calculated risk on internal defense and economic rehabilitation. Both of these assumptions are believed to be untenable. The so-called calculated risk is one we cannot afford to take as a nation, if we seriously believe there is a real threat of all-out war. Furthermore, there is no reason to believe the American people would fail to support the economic burden of a combined offensive-defensive program coupled with economic rehabilitation measures, if they were convinced of its necessity.

A third point of view leading to a by-passing of nonmilitary defense program may be described as the economy approach. While the need for minimizing expenditures plays some part in the first two viewpoints, as indeed it must in any program for national security, we have in mind here those people who believe that first priority must be given to maintaining a "sound economy". They argue the U.S. leadership in the Free World depends on the maintenance of the continued economic solvency of the U.S. It is therefore better to cut back our military and foreign aid commitments and refuse to take on new burdens, such as measures for nonmilitary defense, in order to strengthen our economy. Those who reason thus are easily persuaded of the declining threat of war and the complete adequacy of military strategy based on offensive strength consisting largely of nuclear weapons. This does not appear to be the view of the majority of the American people, nor does it appear to be the position of the Administration or of the Democratic opposition in Congress. There is, however, a substantial and powerful group in Congress which holds to this viewpoint.



A fourth point of view, which is supported in this paper, is that the U.S. must develop and support a properly balanced national security program consisting of appropriate measures for promoting international understanding and of both offensive and defensive military strength as well as provision for nonmilitary defense. This simple assumption underlying this viewpoint is that if the nation is sufficiently impressed with the continuing threat of nuclear warfare to spend billions on offensive power, it must not neglect internal defense and the necessity of post-attack economic restoration.

This fundamental issue of whether nonmilitary defense is a necessary and worthwhile effort was discussed in the Committee's Policy Statement (pages 3,4).

#### The Feasibility of the Four-Part Program

To put all four of these programs into effect at the level needed to give us reasonable security in these perilous times probably will require a total national defense budget considerably larger than at present. Some people have estimated it at about 50 percent larger.<sup>1/</sup> Whether the required increase be 10, 25, or 50 percent, or some other figure, the pertinent question is can we stand such an expenditure? We may not be willing to do it, but we unquestionably can do it.

During World War II our total expenditure for war purposes ran as high as \$85 billion per year, about 40 percent of our gross national product (\$225 billion), and we paid for \$40 billion of it out of current taxes (18 percent of the GNP.) Today our total expenditures on national defense and foreign aid (most of it going to build our military offensive potential) run less than \$42 billion a year which is some 12 percent of the present GNP of \$350 billion. Even if we had to step up

<sup>1/</sup> Thus, in his book "Power and Policy", (Harcourt, Brace & Company, New York, 1954, page 244), Thomas K. Finletter indicates his belief that adequate atomic air and air defense appropriations would be \$10 billion above present budget figures. He suggests this might be offset in part by cuts in other services. On nonmilitary defense, Dr. Ralph Lapp in his article on "Radioactive Fall-out" estimates \$2 billion would be needed for such civil defense measures as shelters. Others have estimated that a real dispersion policy would require expenditures of several billion dollars over a period of years.



these expenditures 50 percent to an annual total of \$63 billion over a ten year period (which does not seem likely), our "pay-as-you-go" tax bill would average approximately 15 percent of the expanding GNP (now \$350 billion and projected to reach \$500 billion by 1965).

A study by Gerhard Colm published a year ago by the National Planning Association<sup>1/</sup> indicated that a total defense program of \$75 billion a year could be absorbed without severe dislocations of our production and consumption patterns and without weakening the economy. We would thus be buying the best available insurance for the preservation of our way of life, indeed for our very lives themselves, at a pay-as-you-go tax rate less than the 1945 tax rate. Moreover, as later discussion will show, we believe that a considerable part of the expenditures for nonmilitary defense will have enduring and constructive values in the form of modernized super-highways, rail and air transportation facilities, decentralized industrial development, and decentralized housing. And if these measures did not succeed in averting war, they still offer the only real hope of continuing to produce and fight and win the military conflict.

This four part program for the total defense of the U.S. raises three basic questions:

First, is it necessary? We believe it is. Nothing less will provide even a reasonable prospect of survival in the face of the very real threats of an obliterating war.

Second, can it be done? Is it feasible technically and economically? Here again the answer is yes. Projects Lincoln, Charles, and East River and all of the research studies of the Armed Forces make it clear that the objectives of these four programs are technically feasible. The experience of the U.S. and her Western allies in World War II indicates that the necessary expenditures are economically feasible.

<sup>1/</sup> Can We Afford Additional Programs for National Security? A Statement of a Special NPA Project Committee and a Staff Report by Gerhard Colm with the assistance of Marilyn Young. pp-84, National Planning Association, Washington, 1953.

Third, is it politically feasible? We do not know! We believe however that if the people of the U.S. can be brought to understand the necessity for these programs, they will support them as they have in all emergencies. The great difficulty is to create any sense of urgency and need in this cold war period, particularly when the people are being assured in the name of governmental economy that the present programs are adequate. Nevertheless, the effort must be made to arouse the people to the necessity for such a well-rounded program to provide us with the best available insurance against disaster. One of the areas about which the people are most confused, and least informed, is the very one where they can make the most direct and useful contributions -- the program of nonmilitary defense of the U.S.

It is in the hope of reducing the confusion and increasing the understanding of some of these problems of nonmilitary defense that this report is presented by the NPA.



II.  
The Basic Concepts of an American Program  
of Nonmilitary Defense Against Atomic Attack

After considering the nature of the atomic threat that faces us, many usually thoughtful people hopelessly conclude that there is nothing practical that we can do to counteract the threat and to assure that our economic system can survive and produce during and after devastating attacks. Even some of the scientific and economic students of the problem are gloomy about the possibilities of economic rehabilitation following an all-out atomic attack. Some of these people conclude that our only hope of survival lies in an overwhelming military offensive force which could completely destroy the striking power of the enemy. A corollary of this belief often is an inclination to insist that we must strike first somehow. This is a completely unrealistic position. We and our allies are firmly committed against any "preventive war" or aggression on our part, and American public opinion surely would not support our taking the initiative in launching an all-out war.

Must we then fearfully and fatalistically await the attack while hoping it will not occur? Those who have studied the problem most closely, in our armed services, in our civilian planning agencies, and among the scientists of Project East River and other research projects, believe that we can and must plan measures which will enable us to survive and continue to produce; that we can effectively rehabilitate our economy even under conditions of all-out atomic attack. They point, first of all, to the experience of World War II, in which Great Britain and Germany managed to rehabilitate their economies and keep going under conditions which were then thought to be impossible.

It is true that World War II bombings of the British and German cities and industrial concentrations were nothing like a hydrogen bomb attack, but they did wipe out industries, key transportation, and utility points, and were then be-

lieved to be sufficient to completely cripple the country's production. To the amazement of the air power people of both sides, they did not do so. The planning for economic survival was sufficiently ingenious to keep even the shaky German economy going until military disaster overtook them. Planning for economic survival today is an enormously more difficult task, but we must do it, even at considerable cost in money and inconvenience.

That we can do it is the thesis of this report.

### The Essentials of a Successful Nonmilitary Defense Program

The blunt reality today is that only two world powers, the U.S. and U.S.S.R., are capable of an all-out atomic offensive, and of a successful nonmilitary defense against such attacks.

Why is this so?

There are six essential conditions of economic survival under atomic attack. These are: space; material resources; effective planning and organization for the revival and continuity of industrial production; effective planning and organization for the continuity of essential government functions; responsibility upon the Federal Government for coordination and direction of the nonmilitary defense program; and the availability of people for nonmilitary defense assignments and their willingness to serve. It is clear that neither our allies nor the Soviet satellites can meet all of these conditions, particularly the first two, which are vital. Let us look at these six essentials of nonmilitary defense a little more closely.

#### Space

Both the U.S. and Russia possess the advantages of great space within which potential military and industrial targets can be scattered. Unfortunately, in this important matter there is reason to believe Russia has some present advantages. Not only is her territory greater, but since most of her industrial development has taken place in recent years and has been planned in relation to war conditions,



her key industrial facilities are scattered in a larger number of locations and constitute somewhat less vulnerable targets. However, some students of Russian development believe that while her industrial cities are more scattered, there is little "fragmentation" of targets beyond this development, since most units of production are quite large and interrelated.

As indicated in Chapter I, our key industrial facilities are extremely concentrated in a relatively few vulnerable urban centers. Our industrial system was constructed for peacetime purposes and not for war, so convenience of location was always a major consideration. Moreover, our industrial system is so complex and interdependent that the elimination of certain key facilities would seriously cripple the whole productive mechanism. Nevertheless, we have developed some smaller and scattered production units in most industries which could be used as a nucleus for rebuilding production.

The big question then is, will we be willing to undertake the cost and inconvenience of a rapid decentralization of a sufficient proportion of our industrial capacity to enable us to survive under attack. If we do, we will be using our greatest form of nonmilitary defense -- low target vulnerability. If we do not, we are sitting ducks for atomic attacks, just as are the industrial and population centers of Western Europe. They can do little to improve their position. We can do much and we must not fail to do so! The issue of whether the radioactive fallout of H-Bomb explosions invalidates the argument for scattering targets was discussed in the Committee's Policy Statement (page 11). We believe it does not.

In approaching the problem of whether a nonmilitary defense program is technically feasible for the U.S., the scientists of Project East River concluded that the first prerequisite of such a program was to reduce the job to manageable proportions. This could only be done, they felt, by taking certain steps, one of which involved the reduction of target vulnerability primarily through spacing. <sup>1/</sup>

<sup>1/</sup> Project East River, General Report, Part I. Associated Universities, Inc., New York, 1952.



It is the view of Project East River that the first and perhaps most important condition of a successful nonmilitary defense is the reduction of target vulnerability through spacing.

Material Resources (Including Stockpiles)

From the point of view of nonmilitary defense there are three aspects of the material resources problem: the long-run potential for resource development; the present state of development and accessibility of material resources; and the available stockpiles of essential equipment and materials for immediate use.

If we compare the U. S. and the U.S.S.R. on these points, we would have to concede that the Soviet's long-run potential for material resource development is as great as, or perhaps greater than, ours. In a long-drawn-out war this could prove a disadvantage to us. At least we shouldn't be too complacent about our continuing advantages in this respect.

However, in an atomic war it is likely that the decisive period will be relatively short in terms of years, and under such conditions it is the present availability of these vital material resources — minerals, petroleum, power, etc. — and the stage of development in their use that will be controlling. In this matter the U.S. has had a great advantage and still has a sizeable edge, but the Russians are going all-out to step up their rate of industrial and technological development and they seem to be gaining on us.

In the third aspect of material resources as related to nonmilitary defense, namely stockpiling, the Russians have also been successful, according to available estimates. Although we are in a position, financially and strategically, to build up from our own sources and from our Free World allies, vastly greater stockpiles of key equipment and critical materials to meet an attack situation, we have not done what could and should be done. The U.S.S.R., with its economy on a war basis, devotes a great share of its available funds and material resources to preparation for a war situation, whereas we are trying, perhaps properly, to



carry on normal economic activities and to do our war preparation as a sideline, within economical limits.

If we are to have a successful nonmilitary defense program, more attention must be given to the provision of essential stockpiles. This is true because modern nuclear warfare means that the crucial decision may be made in the first devastating attacks. Unless we are ready with vast supplies not only of military weapons and materiel; but of food, medical supplies, and other essentials for the surviving population; and equipment, machinery, tools, and materials to reestablish and build up those parts of our productive structure which are untouched or are salvageable, we may lose the war.

Mr. Thomas K. Finletter, former Secretary of the Air Force, in his new book Power and Policy indicates that the U. S. can no longer rely on its industrial potential as its greatest military asset, and that we must be more adequately prepared in advance. Without accepting all of Mr. Finletter's arguments on this matter, we do agree that the entire matter of adequate military supplies and stockpiles of those items essential to keep the civilian economy going for the first few weeks of a war is vitally important. (See Committee's Policy Statement pages 13 and 14.)

Effective Planning and Organization for the  
Revival and Continuity of Industrial Production

It is in this area that the U.S. advantages over the Soviet really begin to show up. We demonstrated in World War II and during the Korean episode the great ability of American industry to organize for war production and our unparalleled production capacity. Despite Mr. Finletter's belief that this potential is of less significance in nuclear war, we believe it still represents a vital defensive asset for the U.S.

The only phase of this activity where Russia may have a temporary advantage lies in the fact that they have done more advance planning as to industrial adjustments to meet an attack and to revive and continue production.

As we shall see in Chapter IV, we have made some beginnings in forward planning, but the bulk of American industry has not devoted attention to this problem.<sup>2/</sup> This is a serious defect since in an atomic war there will be no time to improvise emergency plans. Moreover, many steps which could have been taken to prevent disaster will be neglected and the price for such neglect will be far too high.

Effective Planning and Organization for the  
Continuity of Essential Government Functions

As suggested in the Committee's Policy Statement (pages 22-24,) our modern democratic society must depend on government institutions to be able to function. Clearly, we must be able to rely on the continued functioning of all essential parts of our governmental machinery under any and all conditions, including successive atomic attacks. This means that the executive agencies of government must be able to function at all levels, Federal, state, and local, and they must devise means of collaborating with each other in an emergency. Moreover, a democracy requires that legislative bodies and the courts must continue to operate. These problems of government continuity may be more complex in a democracy than in a dictatorship -- but they provide the necessary environment within which a democracy lives, and if need be, fights.

Responsibility Upon the Federal Government for  
Coordination and Direction of the Nonmilitary Defense Program

Particularly in a democratic society such as ours, a comprehensive national program, such as that of nonmilitary defense, must have the understanding, support, and cooperation of all segments of our economic and political society.

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<sup>2/</sup> Illustrations of the present status of industrial nonmilitary defense planning by six industry groups, and by four individual companies, are given in Section B of a mimeographed Appendix to this study. This Appendix also contains a section (A) giving a summary of the present status of nonmilitary defense planning in nine Government departments and agencies. A limited number of copies of this Appendix are available from the National Planning Association, Washington, D. C.



Industries and businesses, labor unions and farmer's organizations, community organizations of all types, and all levels of government, local, state, and Federal, must accept their responsibilities and play their parts.

But the planning, coordination and guidance of the program must come from the Federal Government, the only effective instrument to speak for all of us as individual citizens, whatever our capacity. In a general way we have recognized this responsibility and many Federal agencies have taken the lead in different aspects of the nonmilitary defense program. Some efforts have also been made to coordinate these activities with those of state and local government agencies and private industries. It remains true, however, (as noted in Chapter IV) that Federal leadership in this area is inadequate.<sup>3/</sup>

On November 19, 1954, the United Community Defense Services stated the problem from the point of view of local community social agencies very effectively, indicating that while major responsibilities fall on state and local agencies, they must have guidance from the Federal Government before their work can be effective.<sup>4/</sup>

Recognizing the need for coordination and leadership in the Federal Government if we are to have an effective nonmilitary defense program, we have made a recommendation for a Presidential nonmilitary defense program commission which it is hoped will facilitate this objective. (See Committee's Policy Statement, page 26.)

The Availability of People for Nonmilitary Defense Assignments and Their Willingness to Serve

In the final analysis, the success of a nonmilitary defense program depends on the people available and their willingness to serve. Here a free democratic nation like the U.S. has an overwhelming advantage over the Soviet type of slave dictatorship, provided only that the people awake to the seriousness of the

<sup>3/</sup> See footnote 2, Chapter II, page 6, concerning additional available information on nonmilitary defense planning in the Federal Government.

<sup>4/</sup> People and the National Defense, An Analysis of Federal Responsibility. United Community Defense Services, New York, 1954.

problem in time. The U.S.S.R. has more people available and they have undoubtedly been given instructions as to their assignments in an emergency. Once our people come to believe that nonmilitary defense is an urgent necessity, the superior achievements of a free democracy will result in a program that will be far more ingenious, adjustable, and effective than is possible in a regimented state. The behavior of the British under attack in World War II illustrates this intangible but very real advantage.

The big problem now is how to bring our people to an understanding of the urgency and vital necessity of a nonmilitary defense program, which they must support with their votes, their taxes, and their own individual participation. The final recommendation in the Committee's Policy Statement (page 27) offers a suggestion which may be helpful in this matter.

#### The Incentives for Public Support of Such a Program

If the story is properly told, we believe there will be three powerful incentives for public support of the program:

First, a realization of the disastrous effects of failure to plan and act in ways to assure economic survival.

Second, an understanding of the deterrent value of a well-planned nonmilitary defense program. If the enemy were aware (as they would be) that U.S. Government agencies and industries had effective plans for continuity and rehabilitation so that no initial attack could completely cripple our productive power and our ability to continue fighting and strike back, they would hesitate before making such an attack. A well-planned nonmilitary defense program would have almost as much deterrent value as a strong military defense.

Third, the coinciding of nonmilitary defense programs with certain long-range national objectives would have a positive influence on public support of these activities, once they were understood.



As we shall see, the major measures for promoting nonmilitary defense include the following:

1. Speeding up the decentralization of industry from urban concentration into satellite suburban areas and smaller cities and towns.
2. The decentralization of housing along the same lines.
3. Major highway development and improvement, as well as as air terminal and railway improvements to facilitate dispersion of industry and population and the movement of people and materials in an emergency.
4. The conservation and wise use of our material and other natural resources to meet wartime needs.
5. Increased public participation in government activities of vital concern, ranging from industrial and community defense planning activities in cooperation with government agencies, to participation in various civilian defense activities as individual citizens.

All five of these measures, although occasioned by the requirement of non-military defense, are in line with our long-run objectives as a democratic society interested in improving our standards of living. If no attack comes, much of the expenditure of money and effort on these measures will have contributed to our future welfare. If disaster strikes, these measures will help us to survive.

### III, The Major Tasks of Nonmilitary Defense and the Responsibilities for Carrying out These Tasks

The purpose of this chapter is to describe in more detail the five major tasks which make up the program of nonmilitary defense of the United States, and the assignment of responsibility for these tasks. These five tasks are designed to meet the essential requirements of a successful nonmilitary defense , as listed in Chapter II. Each of these tasks places some responsibility on government, on industry and on individual citizens, although the central responsibility may fall on one group for a particular task. The five major tasks of nonmilitary defense are described in the following sections.

#### The Task of Reduction of Target Vulnerability

As noted in Chapter II, the report of Project East River starts with the assumption that the first prerequisite of a feasible nonmilitary defense program is to reduce the job to manageable proportions. This could be accomplished largely through a more effective air defense and through reduction of target vulnerability by using our advantages of space.

Our major nonmilitary targets are the key industrial facilities needed to keep production going, and our urban population concentrations with their complex networks of transportation, communication, public utility and service facilities. In these days population centers are also prime targets because here are located most of the planners, industrial managers, scientific and engineering technicians, skilled workmen, and government officials upon whom our survival depends. Without these key human resources we fail -- no matter what material resources and facilities remain.

Reduction of target vulnerability involves two basic approaches -- dispersion of industrial facilities and population, and provision of protective construction.



Dispersion

Dispersion -- reducing target vulnerability by spacing -- is the more effective method. While protective construction will help, not too much can be counted on in the way of attack-proof construction in the hydrogen bomb age. Safety lies in the target not being available, and spacing offers the best way of increasing the chances of survival, both for people and for facilities.

With the recent growth in public understanding of the dangers of radioactive fallout following an H-bomb explosion, some people have begun to question the value of dispersion. For the reasons given in the Committee's Policy Statement (pages 9 and 10) and in Chapter I, we believe the validity of dispersion as a means of reducing target vulnerability remains despite the increased hazards due to the fallout problem. Surely the distance standards in a dispersion policy have to be revised in the light of our new knowledge -- and they are being revised. For example, the relocation plans for the key Federal Government agencies in case of atomic attack on Washington were comprised within a 20-mile radius of the city in 1951. In the recent test exercise in November 1954, the various agency headquarters were scattered from Pennsylvania on the north and West Virginia on the west, to North Carolina on the south.

General Benjamin W. Chidlaw, the commander of continental defense of North America, told the Conference of Mayors in Washington on December 2, 1954 that it was theoretically possible for the Soviet to make a simultaneous atomic attack on our 100 key target cities. We can be sure our military defenders don't intend to let that happen, but even if it did -- there would be vast areas of the U.S. which would not be seriously affected either by blast damage, thermal radiation and fires, or by the deadly nuclear radioactivity resulting from the explosions. Suppose, instead of having 90 percent of our key manpower and our vital industrial, governmental, and other facilities concentrated in these 100 targets, we had 50 percent there and the other 50 percent scattered in 500 other dispersed locations? How much greater our chance of survival!

Studies made of the present location of our key industrial facilities by the Industry Evaluation Board<sup>1/</sup> show a frightening concentration of some critically important production items in a few plants and a tremendous concentration of our total industrial potential in the same large urban centers where our population and our key human resources are located. What can be done about it? Clearly it is neither physically nor economically feasible to relocate the bulk of our industrial facilities and our urban populations in dispersed centers within a period of say three to five years. Nevertheless, some things are being done in this direction and much more can and should be done.

For years there has been a growing trend toward the decentralization of industry from the heart of urban centers -- to suburban and outlying locations around the city and to smaller cities and towns. Under the defense program, government tax amortization and other financial incentives have been used to accelerate this trend. New plant construction in dispersed locations since World War II has been proceeding at a rate which is moving about three percent of our industrial capacity to dispersed location every year, under existing dispersion standards. This means that over a ten-year cold-war period this trend would decentralize 30 percent of our industrial capacity (at least under existing dispersion standards). The problem is how to step up this rate of decentralization much more rapidly and effectively -- a joint task for industry and government. (See recommendations, pages 11-13, Committee Policy Statement.)

The same sort of trend has been observable (although slower) in the decentralization of population, housing, and service facilities from the heart of urban

<sup>1/</sup> See footnote 2, Chapter II, page 6, concerning the Appendix which contains additional information on the present status of nonmilitary defense planning in certain Federal agencies. The Industry Evaluation Board is covered under the section on the Department of Commerce.



centers to suburban locations and "satellite" sub-centers surrounding the cities. As the industrial decentralization accelerates, the population, housing and service facility dispersion could be expected to keep pace. Again the private housing, commercial, and transportation organizations would need to cooperate with the appropriate government agencies in speeding up this dispersion program.

One of the great advantages of this approach is that if it is properly guided toward the creation of interlocking satellite towns, or cities related to the metropolitan centers, this decentralization movement is fully in line with the best peacetime community and industrial planning and the costs of accelerating the program would not be lost if their defense uses were never required.<sup>2/</sup> These expenditures not only provide "national defense insurance" but an investment in the future of our country.

#### Protective Construction

By protective construction we mean revised construction standards designed to reduce attack damage. We are not here talking about "shelters" or "cover" as temporary protection of people under atomic attack. Here again the government must cooperate with private industry and individuals by providing construction standards and guidance, and perhaps by sharing the cost of special construction deemed necessary to national security. The job must mainly be done by private industry in its own interest.

While little has as yet been done, some companies have been seriously studying the problem. For example, one important manufacturer of a number of critically important military items is considering not only the dispersion of its plants, but also putting the critical half of its production facilities underground. Its effort to explore the extent and manner in which government might finance a share of the

<sup>2/</sup> "Is Dispersal Obsolete?" by Donald Monson. Bulletin of the Atomic Scientists, December 1954.

cost of this protective construction may prove to be an important test case. The matter of who pays the cost is of special significance to the smaller businesses which could not carry the full cost of such construction.

While the reduction of target vulnerability is of prime importance, and over a period of years could constitute the chief form of nonmilitary defense, in the face of the potential threat we must also look to other defense and survival measures.

#### The Task of Provision of Emergency Services at the Time of Attack (Civil Defense)

The immediate task in facing an attack situation is the provision of those emergency services which we have usually thought of as Civil Defense -- those preparatory measures and immediate "picking-up" activities which are directly associated with an attack situation. We do not include here the measures designed for post-attack rehabilitation and continued functioning of industry, government, and economic life. These services especially, are tasks which all segments of our society must share. Government at all levels must set up the plans and organize the program, but private industries, business, and groups of individual citizens must all accept their appropriate roles and do the job.

These emergency civil defense services are of three general types: Services to people; Measures relating to property and materials; and Emergency transportation, communication and public utility control measures.

#### Services to People

These must be planned and provided for, and include:

1) Development of shelter and cover facilities, and evacuation plans. Here the thinking in the FCDA has shifted somewhat from the earlier emphasis on shelter plans to a belief that with longer warning times available, more reliance must be on evacuation plans; at least until the age of intercontinental guided missiles arrives. (See the Committee's Policy Statement, page 8.) Shelters and cover are



important for temporary protection, as well as part of an evacuation program, and for key personnel who cannot leave dangerous locations. However, adequate shelters for urban populations in an atomic or hydrogen bomb attack cannot be the main reliance -- people must be moved out of target areas. Here is a task calling for the utmost in community cooperation in developing workable plans. (See Committee's Policy Statement, pages 9 and 10.)

2) Provision of public health measures, sanitation, medical care, and social welfare services. Little needs to be said about the urgency of these problems. Total casualties in case of an all-out attack will run into millions. The tasks of public sanitation, provision of adequate medical and hospital facilities and supplies, and particularly the provision of sufficient medical personnel are enormous ones. Adequate solution of these problems will be costly and difficult -- but certainly it is a task we cannot shirk. Some of the steps taken to date by the ECDA and the Department of Health, Education and Welfare are summarized in the Appendix, Section A-2 and A-8.<sup>3/</sup>

3) Measures for the control of manpower assignments in the emergency period. This is a ticklish task, but if we are to survive an attack, plans for effective use of manpower must be carefully drawn and every person should be familiar with his probable assignment, whether in civil defense activities or in his regular task, and must also be willing to accept such changes in that assignment as may be required by the emergency. Here the problem is to have well-worked-out plans and alternatives, in government, in industry, and in all other sectors of the economy -- so that people will know what is expected of them. The Department of Labor has been studying this problem (Appendix, Section A-6).<sup>3/</sup> The motivation to action will be provided by the emergency. Some suggestions bearing on this problem are included in the Committee's Policy Statement, pages 20 and 21.)

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<sup>3/</sup> See footnote 2, Chapter II, page 6, concerning Appendix.

Emergency Measures Relating to Property and Materials

Three types of measures are envisaged:

1) Recommended measures for protective construction and shelter and cover facilities.-- This includes provision of such minor construction changes in factories, building and homes as would help minimize attack damage and casualties, without involving major reconstruction.

2) Provision of emergency stockpiles of such items as medical supplies, food, and key material and equipment supplies which would make possible emergency repair of key facilities. These emergency stockpiles are in addition to the national stockpiles of critical materials and equipment designed to make possible the continuity of industrial production.

3) Damage surveys and damage reporting procedures.--This includes an advance analysis of the potentially critical damage areas in urban and industrial target centers, and the provision of a dependable and fast reporting system to make possible current appraisals of attack damage. This is essential to programming of materials, equipment, and manpower allocation for continuing vital production. It also has an important bearing on later problems of financial indemnification for attack damage.

Emergency Transportation, Communication, and Public Utility Control Measures

It is obvious that in an emergency attack situation there must be centralized control of remaining transportation, communication, electric power, gas, water and other public utility facilities in order to expedite emergency services. Plans for such measures must be fully drawn and understood in advance. Fortunately these utility companies and agencies are accustomed to such planning for minor disasters and emergencies and many of them are well along in their planning with civilian defense authorities. (See Chapter IV and the Appendix, Sections B-1 and B-1-b.)<sup>4/</sup>

<sup>4/</sup> See footnote 2, Chapter II, page 6, concerning Appendix.



### The Task of Provision for Economic and Financial Stability

In an attack situation and the period following it is important that proper provision be made for assuring economic stability and avoiding chaotic and uncontrollable economic and financial developments. This calls for extensive and careful advance planning by those agencies, largely of the Federal Government, charged with these responsibilities. The complex nature of this task is emphasized in the Committee's Policy Statement, pages 17-19. At least four aspects of this necessary planning can be identified: standby plans for economic stabilization (price, rent, wage, rationing controls etc.); monetary and fiscal policy plans, including emergency provision of credit to industries, insurance companies, and other financial institutions; provisions for minimum incomes to families who have lost their source of income; and provision for financial indemnification of property losses.

#### Standby Plans for Economic Stabilization

This calls for the necessary measures of price, wage, rent, and rationing controls to stabilize economic conditions in the emergency and to channel goods and services to the users in a fair and equitable manner.

World War II measures would not be suitable to the anticipated new conditions and these measures need a thorough overhauling and up-dating. This is largely a government job. As we shall see, (Chapter IV and Appendix, Section A)<sup>5/</sup> some of this preparatory work has been done, but much of it remains to be done.

#### Provisions for Currency, Banking and Government Fiscal Policy

Government fiscal policy relating to tax measures and the management of the public debt must be reviewed in the light of anticipated emergency conditions and the necessary standby measures prepared. Likewise, monetary policy, including currency and credit control, must be brought up to date. Some progress has been made in this latter field. (See Appendix A, Section 9.)<sup>5/</sup>

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<sup>5/</sup> See footnote 2, Chapter II, page 6, concerning Appendix.



Also some banking institutions, including many of the important ones, have developed plans for continuity of operation.

Provisions of Minimum Incomes  
to Workers and Families

This involves not only continuity of incomes from regular employment under post-attack plans but provisions for family incomes to families of workers killed or injured in the attack and those assigned to various civil defense duties. It also involves provisions covering social security benefits and private insurance holdings of the people. Another phase of this problem is that of disability and death benefits resulting from attack casualties. This is a problem we have not faced before, and so far we have done little or nothing about it.

Provision for Financial Indemnification of  
Property Losses Due to Attack Damage

This requires attention to problems of: industrial losses and reconstruction costs; housing and personal property damage; and provision of replacement of government property, schools, hospitals, public buildings, etc.

It is obvious that the government responsibility for financial losses occasioned by personnel casualties and property damage in an all-out attack is a major problem of fiscal policy. The tasks of survival of private insurance systems and the social security program are no less difficult. Again, we have not faced up to these problems.

In thinking about the problems of nonmilitary defense and economic survival after an attack we tend to forget that industrial production and continued economic activity depend not only on people and factories, equipment and materials, but also on income and capital. The worker is helpless without reasonable stability of income; industry cannot restore its facilities and operate without credit and capital; and government fiscal and monetary policy must be planned to meet emergency situations.

Less attention has been given to these financial problems than to any other aspect of nonmilitary defense, yet these problems are not only important, they



are extremely difficult and complex. (See Committee's Policy Statement, pages 17-19.)

The Task for Provision for  
Continuity of Industrial Production

After we have done the best job we can of reducing target vulnerability and have faced the task of "picking up the pieces" immediately following an all-out attack, the big questions are: Can we revive and continue our vital industrial production, and can we avoid chaotic economic conditions? Government has major responsibilities in trying to assure economic and financial stability, but the plans for continuing production must be provided by industry in the main. During World War II, American industry demonstrated its great capacity for adjustment to new and difficult conditions. There is no doubt that we can do the job, even under the conditions of atomic attack, but it calls for much advance planning and some expenditures by industry, as well as over-all guidance and some financial assistance from government.

Basically there are three kinds of advance planning programs required.

Stockpiling of Key Equipment and Critical Materials

American industry is an enormous consumer of materials and energy under normal conditions and under defense production requirements its consumption of these resources is gargantuan! As the Paley Commission pointed out, the U. S. normally consumes over one-half of the Free World's production of materials although constituting only 10 percent of the population and 8 percent of the land area.

This makes us vulnerable to attack on two counts: We need enormous supplies of equipment, materials, and energy to keep our key industries going for even two to four weeks should the normal flow of supplies be cut off by attack damage; and we are increasingly dependent on foreign sources for many critical materials. For these reasons we found it necessary in World War II, and during the Korean affair,

for the Government to stockpile many materials, and for key industries to build up their inventories of equipment and materials far beyond normal requirements -- wherever supplies permitted. Today we face even greater demands for stockpiling critical materials and many items of key equipment. Major attention must be given to the production and stockpiling of key items of equipment which require a very long "lead-time" to produce. This problem is stressed in the Committee Policy Statement, pages 13-16.

Provision for Control and Allocation  
for Critical Equipment, Materials, and Energy

World War II and the Korean episode both demonstrated the need for this activity.

While these experiences taught us a lot about how to do the job, the planning needs to be brought up to date to take into account the damage estimates and restricted supply problems incident to atomic warfare. Although this is largely a government task, we have learned that experienced industrial men must take the government assignments to do the job.

Industrial Plans for Continuity of Production

This is the heart of the task of planning for economic survival. It is the job of industrial management, with government rendering certain essential guidance and financial assistance. It includes such things as pre-attack preparation of records, advance personnel assignments and lines of succession, protective construction, possible dispersion of essential activities, and provision for post-attack transfer of production activities between plants and companies. Rather than attempting to spell out at this point the many aspects of this problem and how they could be attacked, we have included in Chapter IV and Appendix B <sup>6/</sup> summaries of the present advance plans of a few industrial groups, and a few individual companies. The variety of ways these industries have tackled the problem is very suggestive.

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<sup>6/</sup> See footnote 2, Chapter II, page 6, concerning Appendix.



One important change in planning for economic and industrial continuity needs to be emphasized as a result of the new conditions imposed by nuclear warfare. This is that more reliance must be placed on utilizing the economic and industrial potentials of the non-bombed areas, building primarily on that base for continuity and less on rehabilitating facilities in the bombed areas. This is a corollary of Mr. Finletter's argument that much of our industrial capacity in target cities will be hopelessly destroyed.<sup>7/</sup> Even though much of the capacity in and around a bombed metropolitan area may prove to be capable of rehabilitation, it certainly is true that we must think more in terms of carrying on with the areas and facilities we have left, at least for a considerable period of time. This factor must be carefully considered by industries in planning their industrial defense, and by Government agencies responsible both for stockpiling of materials and equipment, and for the allocation of essential materials, energy, supplies, and equipment following an attack situation.

As suggested in the discussion of civil defense measures, this means that the non-bombed areas must also be prepared to carry on essential community and government functions, as well as to handle evacuated people from the bombed areas. This new emphasis requires much advance planning since it involves a concept of economic survival hitherto unfamiliar to us.

The Task of Provision for the Continuity  
of Essential Government Functions -  
Federal, State, and Local

Although not as complex a problem as the provision for continuity of our many essential industries, the continued operation of governmental machinery is no less vital to our survival and rehabilitation. Government provides the coordinating machinery for all our activities and in its absence chaotic conditions would prevail; hence we must plan for the survival and rehabilitation of all

<sup>7/</sup> Power and Policy, Thomas K. Finletter. Harcourt Brace & Co., New York. 1954. page 256.

essential government activities at each level -- Federal, state, and local. In an emergency period, the government functions are even more important. (See Committee's Policy Statement, pages 22-24.)

As we shall see (Chapter IV and Appendix, Section A) <sup>8/</sup> plans for the continuity of some Federal Government Administrative activities and functions are fairly well under way. The situation with respect to the administrative agencies of state and local governments is very spotty and lagging. Moreover, at no level of government, Federal, state, or local, have provisions been made for the continuity of legislative and judicial functions.

#### The Responsibility for Carrying out These Tasks

It should be clear from this brief review of the tasks of nonmilitary defense that it is a stupendous and complicated program to develop. The five major tasks of a nonmilitary defense program require participation by all segments of our economic and social life. It is the job not merely of government, but of industry, of the local communities, and of every individual citizen. It can be done -- but most people must believe that it must be done, and be willing to sacrifice time and money to do it. Thus, industrial production cannot be effectively dispersed to reduce its vulnerability to attack unless government indicates the required measures of safety and is prepared to carry part of the extra costs; but the main job of planning such dispersion and working it out practically falls on industry itself.

The civil defense tasks of picking up the pieces in the immediate emergency of an attack, require that every public and private agency, group, and individual do its part if casualties and property damage are to be minimized and our economy shored up so it can go on functioning. Although the entire job of nonmilitary defense is a cooperative one, the responsibility for each of the five major tasks

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<sup>8/</sup> See footnote 2, Chapter II, page 6, concerning Appendix.



centers in certain agencies, public or private, and it is necessary to see something of how these responsibilities are assigned before reviewing the present status of planning and the gaps in the program which need attention. It is believed that the best way to visualize these responsibilities is to consider briefly the role of the five principal participants:

- the Federal Government;
- state and local governments;
- private industry;
- the local community agencies; and
- the individual citizen

The Role of the Federal Government  
in Nonmilitary Defense

As in the case of the other three phases of an over-all national defense program -- namely, military offense, military defense, and nonmilitary international programs -- the Federal Government must take the central responsibility for developing and guiding a nonmilitary defense program. Not only is this essential for proper coordination of nonmilitary defense with the other aspects of national defense -- but in no other way can the five essential tasks of nonmilitary defense be coordinated into a comprehensive and effective program. This means that in each of the five nonmilitary defense areas, the Federal Government must provide the basic assumptions and program guides which will set the framework within which the other participating agencies can work and discharge their responsibilities.

More specifically, with respect to reduction of target vulnerability, the Federal Government must provide information as to minimum dispersion standards, for key industries and public utility facilities, for urban housing, highway and transportation facilities, etc., to meet current attack damage assumptions. Moreover it must offer guidance and leadership to local, state, and industrial groups to help them organize their dispersion programs along constructive lines.

Finally, the Federal Government if it wants to secure a real dispersion program must carry part of the extra cost of dispersing these facilities.

With respect to the provision of emergency services at the time of attack (the tasks of Civil Defense) the Federal Government's role is primarily that of the coordinating and planning agency, rather than the operating agency. Basically, civilian defense is a local responsibility, with community agencies, local government units, industries, and individuals doing the job. Nevertheless, the Federal Government must not only offer leadership as to plans and workable programs, but it has two other responsibilities in an attack emergency which cannot be delegated. It must engage in certain advance planning as to how the local efforts will be coordinated and supported in the emergency. This means working out agreements with state and local authorities as to responsibilities and procedures at the time of an all-out attack; arrangements for providing support in the way of medical personnel, medical care and equipment; provision of regional stockpile reserves of medical and food supplies and key equipment; and provision of trained personnel squads which can be assigned to the localities in greatest need.

Finally, in case of an all-out attack, the Federal Government must assume command of national civil defense activities in order to secure an effective defense program. Even under such conditions the maximum local autonomy should be preserved to secure the advantages of local adaptation to existing conditions.

The third nonmilitary defense task, that of providing for economic and financial stability rests largely on the Federal Government. With respect to economic stabilization, we have learned that a war emergency requires an entire harness of economic controls to keep our economy on a moderately even keel under stresses which tend toward chaotic price, credit, and wage conditions and toward unfair distribution of scarce goods. Although state, local, and private agencies can carry out part of this task, the planning and direction of this program of necessary controls must be a Federal Government function. The economy is national



in scope and prices, wages, and credit respect no state or local boundaries.

The Federal Government must also plan Government fiscal and monetary policy to meet the shock of attack conditions. Arrangements for financing huge Government expenditures must be made, for all phases of defense and to shore up the income and capital structure of our economy. If our private industries are to operate, our insurance and financial institutions to survive and meet their obligations, and our workers to have incomes, provisions for emergency financial arrangements must be well worked out. In addition to taking the lead in planning such measures, the Federal Government must be prepared to carry a large part of the financial burden of personnel casualties and property damage in an attack situation. The assurance that plans are made to meet such contingencies will in itself be a defense measure against panic and chaotic conditions.

The fourth major nonmilitary defense task, that of providing for continuity of industrial production, falls primarily to private industry, but the Federal Government has an important role to play. In an attack emergency there will be an acute shortage of materials and equipment necessary to reconstruct and get back into operation the critically important industrial, transportation, public utility, and other facilities to keep our production going. The Federal Government must not only stockpile these critical items of equipment and materials, but must provide for control and allocation of the supplies to the most essential uses. Such controls were necessary both in World War II and during the Korean episode and the demands on our material resources and our production facilities would be far greater in an atomic attack.

When it comes to planning for industrial continuity, the Federal Government has a minor role, that of stimulating such planning, serving as a clearinghouse of information and, in certain instances, carrying part of the cost of unusual expenditures which industry would not make except under the threat of an attack.



The fifth nonmilitary defense task, that of providing for continuity of essential government functions and agencies, falls on government, perhaps largely on the Federal Government. While it has no responsibility for state and local governments other than to stimulate planning activities and serve as a clearing-house of information, it does have the full responsibility for assuring continuity of Federal Government functions which are of enormous importance in an attack situation. The Federal Government is the nerve center of a nonmilitary defense program and its continued functioning is essential to our survival.

#### The Tasks of State and Local Governments

Partly because state and local governments have given but limited attention to trying to define their roles in nonmilitary defense planning, and partly because the Federal Government, in our system, has the chief responsibility for national defense, the part to be played by state and local governments in nonmilitary defense has never been clearly defined. Recently, however, the Committee on Civil Defense of the American Municipal Association published an excellent statement of a projected program in this field which can do much to stimulate thinking and planning in this area by the cities.<sup>9/</sup>

Until World War II, civilian populations and industrial centers were not the objects of military attack and provision of all aspects of defense could appropriately be left to the Federal Government. Even in World War II, we were not attacked and the problems of nonmilitary defense did not become realistic to our people. Perhaps they do not seem so even now — it is always hard to believe that "it can really happen to us."

Although little attention has been given to the responsibilities of state and local governments in anything but the emergency civil defense aspects of nonmilitary defense planning — perhaps some suggestions of these responsibilities can be offered.

<sup>9/</sup> Resolution on Civil Defense and Disaster Policy, American Municipal Association. Washington. 1954.



In the reduction of target vulnerability both state and local governments can make an important contribution. So far as the states are concerned, they carry a large share of the task of planning highway and traffic improvements. High on the list of criteria to determine which highway projects should receive priority should be the nonmilitary defense considerations of facilitating the decentralization of industry, housing, and commercial servicing areas, as well as making possible the evacuation of city populations in an emergency. Both state and local governments should review their tax structures, particularly property taxes, to see that at least they do not discourage the decentralization movement. As cited in the Committee's Policy Statement (page ) the state of Wisconsin has been asked by the city of Milwaukee to consider state-wide zoning for purposes of nonmilitary defense. Local governments, municipal, county, school districts, etc. should restudy their programs of construction to see that they conform to desired standards of dispersion and protective construction. Moreover, local zoning and land use regulations should be reviewed to see that they facilitate dispersion trends, rather than obstruct them.

In the task of providing emergency services at the time of an attack, the state governments not only provide the second link in the chain of civil defense command, but many of the agencies of state government can contribute to the planning and execution of these emergency services. State health departments, state police and national guard units, highway departments and many others can serve in supplementing the local personnel in carrying out the actual tasks of civil defense. The state governments must also cooperate with the Federal Civil Defense Administration in building regional stockpiles of emergency supplies and in plans for mobile units to support localities which may be subjected to attack. Provisions for evacuation centers and plans for handling the vast numbers of people who must be evacuated from urban centers in an attack, rest heavily on the state governments.



However, it is the local governmental units which must bear the brunt of planning for attack emergencies and carrying out the assigned tasks under these conditions. The whole theory of civilian defense is based on the full use of regular units of local government to carry on the emergency tasks at the time of an attack. Emergency fire fighting services are planned around the regular fire departments and the police, health, street and highway, and other regular city departments form the nucleus of planning and of staffing the civil defense force. Only thus can an orderly plan be developed. People are accustomed to rely on these existing local governmental services and will readily agree to serve in appropriate voluntary assignments under what they regard as competent local professional leadership.

Municipal governments must take the lead in drawing up evacuation and shelter plans, provisions for health, hospital, and medical care, setting up rescue and repair crews, and such things as damage survey and reporting programs. Plans must also be worked out with the local transportation, communication, power, gas, water, sewage, and other utilities to meet emergency conditions.

With respect to the two other tasks of nonmilitary defense, continuity of industrial production and provision of economic and financial stability, the state and local governments have no major responsibilities. They need to review their existing laws, regulations, and ordinances to see that they conform to possible emergency requirements. Moreover, each of these governmental units may have some assigned role to play in certain of the national programs, such as rationing of goods, damage assessment reporting, etc.; but the major responsibility for these two tasks falls on the Federal Government and on industry.

#### The Tasks of Industry in a Nonmilitary Defense Program

In three of the five nonmilitary defense tasks, reduction of target vulnerability, provision for economic and financial stability, and continuity of industrial production, private industry must play a role of great importance.



With respect to the continuity of government functions, industry has little responsibility, save to plan to make available some of its key personnel to staff essential government functions in which they have had some experience or training. Industry does have responsibilities to meet in providing emergency services at the time of attack, particularly to provide for shelter or evacuation of personnel, repair of attack damage and cooperation with local civil defense authorities in all aspects of emergency activities. However, the responsibility for planning and directing these activities lies elsewhere.

In the task of reducing target vulnerability, industry plays a major part. Government can indicate the desired standards of dispersion of protective construction and can share some of the extra cost, but industry itself must plan and carry out the program and bear much of the cost. This is a difficult task and involves many economic as well as security considerations. As we shall see (Chapter IV and Appendix, Section B), <sup>10/</sup> a few industries have already faced up to the problem, but many more have given it no consideration.

The chief nonmilitary defense task of private industry is to provide for continuity of industrial production. The Federal Government must plan and operate the machinery for stockpiling critical equipment and materials; for controlling and allocating materials and equipment; and maintaining price, wage, rent, and credit stability; but even here industry must plan to adjust its operations to these controls and must furnish much of the experienced talent to administer the program. The real job of maintaining production depends on the planning activities and the ingenious ability of industrial management to adjust to new and difficult conditions. Appendix, Section B <sup>10/</sup> describes some of the industrial plans now under way to assure continuity of management; availability of key skilled personnel; safety of records; alternate production facilities; repair

<sup>10/</sup> See footnote 2, Chapter II, page 6, concerning Appendix.



and reconstruction plans; stockpiling of essential equipment, materials, and supplies; alternate sources of power; and a myriad other things involved in this most complex task. No government agency could do this job, and on its successful performance depends our economic survival and hence our very existence.

Private industry also has an important role in providing for economic and financial stability. Plans must be made for financing the costs of reconstruction and keeping production going, as well as meeting regular payrolls so that workers' incomes will be maintained. Government can help, but private industry must plan to shoulder the big job of financing its continued operation, at least pending any indemnification for attack-damage losses.

#### The Community Responsibility

It is clear that the major responsibilities for planning and directing a national nonmilitary defense program rest with the Federal Government and with private industry. However, if this enormous task is to be accomplished, not only state and local governments but, even more significantly, community groups and individual citizens must do their parts. By the community we mean all those organized voluntary groups which are the special genius of America. We are a voluntarily organized society — everything we want to accomplish in our community life which cannot be done by us as individuals, or through government or industry, we form a voluntary organization to do and we do it. Community chests and social agencies, Red Cross and the March of Dimes, women's clubs and men's luncheon clubs, fraternal orders and church societies, school boards and P.T.A.'s Leagues of Women Voters, veterans' organizations, Chambers of Commerce and labor organizations, and a host of others are the channels through which we cooperate to achieve the ends we desire.

Every American knows that in a time of emergency all of these organizations will throw their force behind any needed program. They will provide the volunteers



to supplement the regular government agencies, to staff the hospital and medical services, the civil defense warning and rescue squads, and all the other tasks. <sup>11/</sup>

What can such community groups do in advance of the emergency? There are two things that can and should be done. The first is a self-educational program. Most of these groups have some sort of a program of study, talks, lectures, or information. No more important educational project exists today than to build an understanding of what the tasks of nonmilitary defense are and what can be done about them. Various ways of presenting the story of nonmilitary defense should be devised so that it will be interesting and challenging and seem to be practical. The second suggestion is that each such group should devise a project which could be its particular contribution to the local nonmilitary defense program. The possibilities are limitless when the range of problems and the things to be done are understood. Once such groups are convinced of the need of the nonmilitary defense program there will be no lack of ideas as to practical and helpful projects.

#### The Role of the Individual Citizen

Nearly every citizen plays a part in some of the activities we have described above, as a government worker, or as a manager or worker in industry, as well as a member of one or more community groups. But what can he do about nonmilitary defense as an individual citizen, apart from the above roles? Of course, in the emergency of an attack situation, his main contribution would be as a civil defense worker in his appropriately assigned task; but even before the emergency there are significant duties to perform.

As a citizen and voter it is his or her duty to try to understand the problems involved in developing a successful nonmilitary defense program. As a voter and policy-maker, he must decide how much and what kind of a national security

<sup>11/</sup> Some of the nonmilitary defense work which can be done by these community agencies is summarized in the November 1954 report of the United Community Defense Services entitled People and National Defense. (New York)

program we will have. To do so he must seriously devote time to trying to understand what it is all about and which measures are best. Unless he does so, we will fail to have an adequate defense program. In our democracy the desires of the majority fix the program, even if those desires are merely to be let alone and not to be bothered, or taxed!

As an industrial or government worker, and a member of various community groups, he can actively participate in the advance planning carried on by these organizations and groups. We all know that in every organization the work of planning and programming of activities is done by a few people who see the need and are willing to assume the responsibilities. With tasks as complex and difficult as those of nonmilitary defense, every organization needs the active and interested participation of the majority of its members. Under the conditions of an actual attack, every individual citizen should be ready to do his or her assigned task, whether it be in continuing regular government or private employment in essential activities, in the ground observer corps, in local civil defense work, in special assignments to other occupations or locations, or in serving the needs of his own family.

The important thing to remember is that survival of our nation under atomic attack conditions requires complete teamwork on the part of all American citizens. Teamwork means that someone must plan the plays and call the signals, and that each team member must cooperate and do whatever is necessary for the good of all. There is little doubt that in the actual emergency all of our people will cooperate, but in advance of the emergency they must understand what they are to do and why, and must help plan the strategy wherever they can be of assistance.



#### IV. The Present Status of Nonmilitary Defense Planning

If we are to have a worthwhile program of nonmilitary defense, the primary jobs of planning, promoting, and coordinating such a program must be done by the Federal Government and by industry, even though much of the actual work of preparation must be carried out by state and local agencies and groups. Accordingly, in this review of the present status of planning, major emphasis is given to the work of the Federal Government and of industry. For the purposes of this study it has not been possible to review in detail the state government planning activities or those of the many voluntary community groups which have done something in this field.

It is our belief that knowledge of practical industrial and governmental plans which are well under way will be more important to the people than mere statements of what ought to be done — necessary as it is to see the whole range of problems. Therefore in the Appendix, Section A, the present status of planning in nine major Federal agencies is summarized in some detail and in the Appendix, Section B, there is a review of planning activities in six industries and in four individual companies.<sup>1/</sup> We include a brief review of civil defense planning in our larger cities in this chapter. Readers of this report may wish to examine the appendices to get a picture of the present planning activities of typical government agencies and industries.

#### Nonmilitary Defense Planning in the Federal Government

Perhaps the situation reviewed in Appendix, Section A can be summarized by saying that there is much more nonmilitary defense planning activity going on in

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<sup>1/</sup> See footnote, 2 Chapter II, page 6, concerning the Appendix.

the various departments and agencies of the Federal Government than most people realize, but there still is not a comprehensive, well-planned, and coordinated program. If our military offensive and defensive programs were in the same shape as our nonmilitary defense, we would indeed be in deadly peril. Neither the Truman Administration nor the Eisenhower Administration have given the problems of nonmilitary defense the attention and support they require. And the Congress has consistently underrated the need for these activities and has failed to provide the funds for even a minimum program. It should be said, however, that if Congress had been presented with a better planned program its response might well have been more generous.

Immediately following World War II we cut back sharply on our military programs and, for all practical purposes, we abandoned nonmilitary defense planning activities. This was understandable, but unfortunately it was not wise. As we slowly came to realize that we were in for a period of cold war, we began again to rebuild our military strength and made at least some gestures toward developing a nonmilitary defense program.

The most significant development in this direction in the postwar years was the passage of the National Security Act in 1947. This was a statesmanlike measure, creating the basic machinery needed for a comprehensive national defense program. It provides the essential tools for developing national defense and it needs merely to be properly implemented to assure us of the maximum national security obtainable. It recognized that there were several phases of national defense which must be developed and properly coordinated -- military offense and defense, foreign policy measures, and nonmilitary defense. The act contained three essential features: 1. It created the National Security Council to be responsible for all phases of national security policy; 2. assigned to the Department of Defense the responsibility for coordinating the military services and developing



military offensive and defensive programs; and 3. It created the National Security Resources Board (NSRB) to be responsible for planning and coordinating non-military defense activities.

The National Security Council, chaired by the President and including originally the Vice President, the Secretaries of State, Defense, and Treasury, and the Chairman of the NSRB, is the top policy body on all phases of national security policy — military, international affairs, and nonmilitary defense. While the membership has changed from time to time (several Cabinet and independent agency heads being invited by the President to sit in the sessions), its function remains the same and it is an effective body, making all the vitally important decisions. This means that military policy is weighed against foreign policy and internal conditions and the President has the advantage of these informed discussions in reaching vital decisions which he would otherwise have to make himself after listening to rival and often conflicting claims and arguments. The National Security Council is a vital new part of our national security structure.

Of the importance of the Department of Defense in securing coordinated and effective military plans and programs there can be no question. We can quarrel with certain decisions with respect to military policy and strategy, but the need for centralized military planning, for the Joint Chiefs of Staff, and for unified military budgetary control is undisputed.

The idea behind the creation of the National Security Resources Board was equally sound. Unfortunately neither the Truman Administration nor the Eisenhower Administration seemed to understand or utilize the full potentialities of this nonmilitary defense planning agency. The unhappy history of the NSRB is a story by itself, but a few of the events in that history need to be noted here. The first chairman of the NSRB, Arthur Hill, and his staff envisaged the agency as a potential control agency in an emergency — as a sort of standby WPB and OPA — and tried to utilize industrial and other groups as "reserve troops" to be available to step in and run the nonmilitary defense program when needed. This con-



ception of the agency's role minimized the forward planning and programming functions and also had the effect of antagonizing other Federal Departments which thought they should have certain operating responsibilities.

The second chairman named by President Truman, Mon C. Wallgren, was objected to by Congress as a political appointee and never confirmed, although he served unofficially for several months. Then followed a two-year period under the acting chairmanship of John Steelman, who had other important White House duties. Thus for its first years the agency operated under great difficulties. Nevertheless some progress in nonmilitary defense planning was achieved, relating, among other things, to civil defense plans, to materials stockpiling policy, manpower policy, standby measures for economic controls, and efforts to determine the economic feasibility of proposed military defense production plans.

With the appointment of Stuart Symington as Chairman, the NSRB began to function more effectively as a nonmilitary defense planning agency. Some six months after Symington became Chairman, the Korean war broke out and the President designated the NSRB to develop and put into operation the plans for nonmilitary defense. For six months, until December 1950, the NSRB served as the GHQ of nonmilitary defense, stimulating the expansion of needed industrial production, assigning operating responsibilities to the various government departments, and trying to coordinate the entire program. It was never intended, however, that the NSRB should be an operating control agency in an actual war emergency -- it was designed as a planning and coordinating agency. Consequently, in December 1950 the Office of Defense Mobilization and its constituent agencies -- Defense Production Administration, (DPA), National Production Authority, (NPA), Defense Transport Administration, (DTA), etc. -- were created to handle the administration of these operating responsibilities. Mr. Charles E. Wilson was named Director of the Office Defense Mobilization (ODM). Mr Symington was shifted to be head of the RFC and the NSRB in effect went into the discard for the period of the emergency.



The last NSRB Chairman, Jack Gorrie, made a valiant effort to carry out the NSRB functions with a very meager staff, but its functions were largely disregarded by the operating agencies. Even the available NSRB plans and materials were not utilized by the operating agencies such as the Office of Defense Mobilization, (ODM), Defense Production Administration, (DPA), National Production Authority, (NPA), and Economic Stabilization Agency, (ESA). These new agencies were staffed largely by men from industry who had previously been in the World War II agencies and they either reinstituted World War II practices or improvised new ones on their own. Although some effective new plans and procedures were eventually devised, this was a great waste of time, energy, and money. In another emergency resulting from atomic there will be no time for improvising or for the luxury of failing to use available plans!

When the Eisenhower Administration took over in 1953, the buildup for the Korean emergency was largely over and the various operating mobilization agencies were being cut back to skeleton size for standby operations. The new Administration speeded up this process. Thus the ODM was greatly reduced in size, the DPA and NPA were consolidated and returned to the Department of Commerce as the Business and Defense Services Administration, and other units were consolidated and returned to the regular Government Departments -- Agriculture, Interior, Labor, GSA, etc. Early in 1953, under the authority of the Reorganization Act, the President abolished the National Security Resources Board and transferred its non-military defense planning functions to the already skeletonized ODM. The former economic stabilization functions of ESA, and the stockpiling responsibilities of the former Munitions Board were also assigned to ODM. It should be noted that the statutory responsibility for the NSRB functions under the National Security Act of 1947 still remains -- although now assigned to the ODM.

Both in 1953 and in 1954 the President recommended very limited funds for these nonmilitary defense activities and each year an economy-minded Congress



followed this lead and cut the appropriations for these purposes even more sharply. Moreover, the regular Government Departments such as Agriculture, Commerce, HEW, Labor, and Interior, which were supposed to reabsorb these planning activities and carry them forward, were trying to adjust to budget cuts and proceeded to "take it out" of these nonmilitary defense planning activities wherever possible.

As a result of these developments, the Federal Government's nonmilitary defense program is seriously crippled in two vital respects -- it is starving for lack of funds and personnel to do the job, and there is no effective over-all direction and coordination of the program. With respect to the first difficulty, lack of funds and personnel, a few illustrations are indicative of the situation. The former Defense Manpower Administration of the Department of Labor has been reduced to the part-time services of an assistant secretary and his deputy, with one full-time staff member. The former Defense Solid Fuels Administration consists of two men assigned to other duties in the Bureau of Mines in the Department of the Interior, who are able only to answer current inquiries about defense problems, and unable to do any forward planning. The same thing is true of the two men from the former Defense Electric Power Administration assigned to the Department of the Interior Water and Power Division.

The ODM -- the inheritor of the functions of the NSRB and many of those of other agencies such as the DPA, ESA, DMPA, the Munitions Board, etc. as well as those of the old ODM, has been reduced by recent budget cuts to a mere handful of people who are struggling valiantly but well-nigh hopelessly with problems far beyond their staff capacity. ODM has been forced to abandon entirely such vital sections as that planning for reduction of urban target vulnerability, has been unable to move ahead with economic stabilization planning, and has turned over entirely to the Department of Commerce, the Department of Defense, and other agencies the development of plans for industrial continuity.



Even more serious is the lack of a central GHQ for nonmilitary defense planning and programs. There is now no general spokesman for nonmilitary defense programs in the National Security Council -- such as the Chairman of the NSRB was designed to be. Military programs are effectively presented by the Department of Defense and international policies by the Department of State and FOA, but there is no authoritative spokesman for all phases of nonmilitary defense. It is true that the Director of the ODM sits in the NSC, but he has no clear-cut authority over such activities as the FCDA and the nonmilitary defense activities of the Defense Department, two of the major phases of the program. Nor are the responsibilities of the other major Government departments to ODM clearly defined. The FCDA, for example, operates under a separate law granting the agency broad powers in an attack emergency -- so broad in fact that the agency feels with some reason that it should be the central coordinating agency for many of the non-military defense programs. Although (as indicated in Appendix A, Section 2<sup>2/</sup>), the FCDA has been struggling to develop cooperating civil defense planning with other Federal agencies and with state and local governments, it has continuously been hampered by limited funds and inadequate staff. Perhaps better early plans might have resulted in more adequate support -- but the fact remains that the planning in this field is entirely inadequate for the requirements. This chronic difficulty has been accentuated by the move of FCDA headquarters and staff to Battle Creek, Michigan in the summer of 1954 (all except the Administrator and a few of his associates who remain in Washington). Not only has the coordination of FCDA planning with other Federal agencies become extraordinarily difficult, but the FCDA itself has lost some of its ablest and most experienced planning personnel in the shift.

<sup>2/</sup> See footnote 2, Chapter II, page 6, concerning Appendix.

Of course, there are interagency coordinating committees dealing with various phases of nonmilitary defense -- materials stockpiling, manpower policy, emergency medical and hospital care, continuity of government functions, etc. Perhaps the most important of these is the Industrial Defense Committee, chaired by ODM and representing all other departments concerned with nonmilitary defense, (this Committee was inaugurated under the NSRB in November 1951 as the Central Task Force on Post-Attack Rehabilitation by the writer of this paper). This Committee serves as a general clearinghouse and forum for the discussion of various aspects of nonmilitary defense policy. For example, at the invitation of the Chairman, this National Planning Association project was discussed before this Committee and thereafter the doors were open to secure the needed information from each of the constituent departments and agencies.

This and the other interagency committees, however, are no substitute for a strong central planning agency in the nonmilitary defense field. Under whatever name, there must be an agency to carry out the important functions designed for the NSRB in the National Security Act of 1947. We believe that only thus can a successful nonmilitary defense program be developed. Many of the pieces of such a program are now in existence or being developed, and it is important to review these activities in the various Federal agencies as more fully described in Appendix A.<sup>3/</sup> Our suggestions for achieving the needed coordination of Federal planning in this field are contained in the Committee's Policy Statement, (pages 25 and 26).

#### Nonmilitary Defense Planning in State and Local Governments

It had been hoped this study could include a comprehensive survey of the status of nonmilitary defense planning in a number of states and cities, based on interviews in several locations. This was not possible. Fortunately, it was

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<sup>3/</sup> See footnote 2, Chapter II, page 6, concerning Appendix.



learned that the American Municipal Association was conducting such a survey of the Status of Civil Defense in America's Largest Cities. Although not all phases of nonmilitary defense were covered, this survey does cover many of these activities, and we include a summary of the findings of this excellent study.

Inquiry at FCDA, and at the Council of State Governments, reveals no similar survey of state government activities in this field. It is hoped that some organization will be able to make such a needed survey of state programs very soon, particularly since some states such as California, Massachusetts, New York, Ohio, Washington, and West Virginia are reported to have significant programs under way. Knowledge of these going programs would be very helpful to other states.

The American Municipal Association has given major attention to the problems of nonmilitary defense -- particularly the civil defense aspects of the program. In 1954 the association adopted a Resolution Civil Defense and Disaster Policy, containing recommendations under three headings: General Policy Recommendations; Joint Responsibilities of Federal State and Local Governments; and, Responsibilities of Local Governments. The General Policy Recommendations closely parallel the recommendations in this report, and are not repeated here. The other significant recommendations are as follows:

Joint Responsibilities of Federal, State  
and Local Governments

- Federal, state, county and city civil defense organizations, especially by training and education, should bring home to units of government located in the support areas the full realization of the immensity of the problems that will befall them following dispersal or evacuation of a major target area.

- States must assume an even greater responsibility in coordinating and assisting development of civil defense plans and programs especially in arrangements to be made between target and support areas.

- Cities, counties and other local governmental agencies should fully cooperate in making such programs effective and in providing such aid as may be required within the limits of their resources.



- All levels of government especially municipalities should review their present legislation regarding civil defense and disaster preparedness in the light of present day requirements. Action should then be taken to make necessary enactments, amendments, revisions or deletions of municipal ordinances. Existing state legislation should be reviewed by affiliates of the American Municipal Association and necessary legislative action sponsored to bring Civil Defense and Disaster preparedness laws up to date.

- Federal and state programs for the expending of highway funds in target areas should be increased to allow for rapid voluntary dispersal of people if the community desires it. We feel that this program will allow people to live in or near a target city and still have a means of protection. This tremendous investment made in our cities need, therefore, not be abandoned nor would it be necessary to invest additional large sums in new facilities.

- State and federal policies allowing for grants-in-aid for slum clearance and urban redevelopment should be kept consistent with civil defense requirements for reduction of the richness of target areas.

- Further study of a shelter program is necessary by federal, state and local officials to provide shelter in reception areas, or in areas near target areas. In this latter case, we recommend that a program of blast-and radio-active-resistant shelter construction be considered for recommendation by the Federal Civil Defense Administration.

- All levels of government should review the fiscal problems involved not only in the preparation of defense but involved in operating an economy after a major attack. This means that not only will there have to be an appropriation of funds for target and support areas, but it also means that a financial policy must be evolved in case the major production and financial centers are destroyed.

- Federal and state governments should give particular attention to the planning for and the providing of all possible financial and all other necessary assistance to support areas, without which they will be unable to meet the burdens placed on them.

- We recommend that the Federal Civil Defense Administration call a special meeting of representatives of states and local civil defense organizations to discuss specific applications of the terms of grants-in-aid for civil defense purposes.

#### Responsibilities of Local Governments

- Target cities should study methods of providing alternate water and power supplies for their own benefit.

- Cities must study the problem of zoning and construction codes to reduce their own vulnerability, particularly to fire and blast hazard.

- Civil defense and disaster preparedness ought to be included as a part of all municipal employees' training and civil defense and disaster assignments be made so that they may be better equipped to carry out their responsibilities.

- Target cities where (evacuation or) dispersal is considered possible should develop and maintain close liaison with suburban and rural governmental units for mutual aid and cooperative surveys and agreements on welfare, medical and evacuation problems.



There is presented below the summary of the status of civil defense in America's largest cities taken from the survey report made by the American Municipal Association in November 1954.<sup>3/</sup>

Civil defense programs of the largest cities of the United States show a lack of uniformity likely to be surprising at first glance. Within the group cities of over 400,000 population there appears to be a variety of interest and concern ranging from serious and intensive preparation to apparent indifference. Predominantly, however, America's metropolitan cities appear to take a serious view of the necessities of providing civilian defense for their communities. Reflection suggests that there are a number of reasons, of greater or less validity, for lack of uniformity of even emphasis with respect to municipal provision for civil defense. Among these are the strategic location of the individual cities, the competition of other municipal programs for often inadequate financial resources, a difference in public attitudes toward eventualities for which the defense is being erected and differing measures of leadership and support furnished by state governments.

With an evidently well-founded belief that the large cities of this country, as well as many smaller communities, are making workmanlike civil defense preparation largely out of their own initiative and determination, the American Municipal Association undertook... (a) survey... (of the status of civil defense in these cities). It was concluded via questionnaires addressed to the twenty-six cities of the United States having in excess of 400,000 inhabitants. Replies reporting the data here presented were received, during late summer, 1954, from twenty-four of these cities (all) except Los Angeles and Pittsburgh. For three of the two dozen, only partial data were available.

The inquiry sought to assess, in brief compass, the provision the cities have made for civil defense in terms of money and staff, and also the current status of their programs and activities in four broad areas — coordination of program with other governmental units in the metropolitan area, development of evacuation plans, establishment of control centers, and extent of shelter programs. Detailed tabulations and expositions of the replies from each city on the several points appear in the... report. There is here presented a summary... of the over-all situation, according to the six phases of the inquiry.

#### City Financial Provisions for Civil Defense

Financial provisions for civil defense in 1954 budgets find 14 of 23 cities providing gross civil defense appropriations between \$100,000 and \$500,000. Only New York and Chicago exceeded the half-million mark — with budgets of over \$3,600,000 and \$800,000, respectively. Seven cities this year budgeted under \$100,000, with Boston and Minneapolis the largest cities in this group. Of the seven, four budgeted under \$50,000.

<sup>3/</sup> The Status of Civil Defense in America's Largest Cities, Report of a Survey covering U. S. Cities above 400,000 population. American Municipal Association, 1625 H St., N.W., Washington 6, D. C. and 1313 East 60th Street, Chicago 37, Illinois. November 1954.



In 1953 expenditures for civil defense two cities topped the half-million mark, New York at over \$2,500,000 and Detroit at just under \$1,000,000. Eight cities, however, spent under \$100,000 for civil defense in 1953. In this group the largest was Washington, and one city -- Dallas -- spent less than \$10,000.

Greatest disparity is shown in the movement of interest in civil defense in individual cities when 1954 budgets for the activity are compared with 1953 expenditures. The predominant trend was upward. Modest increases of around 10% were provided in Baltimore and Cleveland and somewhat above 20% in Philadelphia, Milwaukee, Newark and Denver. Buffalo for 1953 provided more than 30% more than in 1954, New York and Washington above 40% more, and Seattle an increase of nearly 50%. Four cities made 1954 appropriations about double the previous year level -- Kansas City, Houston, Dallas and San Antonio -- while two others made even more dramatic increases. Cincinnati provided nearly \$280,000 for 1954 as against under \$13,000 in 1953, and Chicago over \$800,000 as against \$142,000.

While these varying increases were occurring between 1953 and 1954, San Francisco and Atlanta maintained about the same expenditure level and five cities made lesser provision for civil defense than in 1953. Minneapolis provided under 90% of the earlier sum, and St. Louis reduced civil defense by nearly 30% on completion of its warning system. Reductions at Detroit and Boston approximated 50%, and Indianapolis reduced to \$25,000 its earlier \$40,000 level of civil defense support.

The financial figures here compared include matching, operational and contingent funds, as reported in the survey questionnaires, plus funds allocated to civil defense purposes by other city departments -- often the salaries of personnel of such departments assigned to the CD organization to the extent reported and ascertainable. Details for each city appear in...<sup>4/</sup>(the report.)

#### Personnel Engaged in Civil Defense Activities

Comparatively small numbers of people are regularly engaged in operation of civil defense activities of America's large cities. The City of New York is an exception, having on the regular staff of its civil defense organization 298 employees, whose efforts are supplemented by 111 personnel regularly assigned to CD from other city departments. In contrast, the City of Chicago reports only two full-time and one part-time CD employees, plus two others assigned from other departments.

Civil defense agencies are staffed by various combinations of full-time and part-time regular CD employees and "loaned" personnel from other city agencies. Personnel on loan are a majority of the CD staff only in Newark, Indianapolis and Denver. In only four other cities -- Philadelphia, Detroit, San Francisco and Houston -- do they constitute a significant proportion of the total CD complement. Ten of the 24 cities for which personnel data is presented report no personnel supplied to CD on a regular basis from other city agencies; Baltimore, St. Louis and Washington are the largest in that group.

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<sup>4/</sup> Ibid. pages B-1 through B-5



Taking full-time, part-time and loaned personnel together, Civil Defense staffs range between 15 and 40 persons in cities between 600,000 and 1,000,000 population, exceptions being St. Louis with 10 and Boston with 13. Among cities between 400,000 and 600,000, the prevalent pattern is for a CD staff of less than ten persons. Houston and Buffalo, at the top of this group, have 20-25; other exceptions are Seattle's regular staff of 14 and Newark's 19, predominantly loaned personnel.

Figures supplied on total number of volunteers enrolled in civil defense activities also show considerable variation. Only the three largest cities have enrolled over 100,000 volunteers. Half the total of 24 cities have rosters numbering from 10,000 to 50,000 volunteers. Two cities -- Cleveland and Boston -- have volunteer corps between 85,000 and 95,000, while Washington has nearly 60,000 enrolled. Six cities, of which Baltimore is the largest, report under 6,000 volunteers enrolled. The variations in volunteer enrollments reflect not only varying intensities of civil defense preparations as between cities, but also a differing viewpoint as to the desirable timing for seeking such enrollments with respect to the development of the city's civil defense program as a whole.

A breakdown of CD volunteer rosters as among the principal services is attempted in the personnel tabulation...(included in this report.) Data presented are incomplete and not strictly comparable because they had to be derived from survey replies giving non-comparable groupings and in some cases developed from other data or documents supplied.

The City of New York is far ahead in the number of volunteers assignable to the police, medical and welfare services, but for the fire service Detroit shows nearly as many as New York's 8,624, and for welfare 10,000 as against 14,819. No figures broken down by separate services are presented for Chicago, Philadelphia, Cleveland, Boston, Buffalo, New Orleans, Dallas or San Antonio.

For the reporting cities of under 1,000,000 (and over 400,000) population, synoptic summaries for the several specified services follow, based upon varying numbers of cities for which data are tabulated in each instance. Police volunteer enrollments of between 1,000 and 4,000 are reported by 7 of 14 cities; three have under 500. In the fire service a range of 800 to 2,000 volunteers covers six of the 14 cities, with three having under 200 and none over 2,000. In the eleven cities with figures on communications service, three show between 3,300 and 4,300 volunteers, one 938, and the remainder less than 350 persons. Larger figures are usually found for medical service volunteers, only two of 12 cities showing less than 1,000 and two others over 10,000 each. Volunteers in the warden service top 4,500 in only two of ten cities, and in only one is their number under 1,000. In the welfare service, the tabulated figures for 11 cities show wide diversity, ranging from 3,201 in Milwaukee to under 100 in two cities. Rescue service volunteer figures are listed for only five cities; three show 350 or fewer persons, San Francisco 1,634 and St. Louis 6,257.

#### CD Coordination with Surrounding Communities

Relatively well-designed functional arrangements for mutual aid and cooperation appear to have been perfected and capable of operation in half the twenty-two cities reporting. These include the six largest cities reporting, plus Boston, Milwaukee, Minneapolis and Denver. In addition, the civil defense activities of Houston, Buffalo, Cincinnati,



Dallas and San Antonio are carried on by a combined City-County CD agency, and those of Atlanta by a metropolitan area agency.

Replies received from four cities are of such brevity as to afford little opportunity to appraise the probable effectiveness of cooperative arrangements presumably in effect. No coordinating arrangements have reportedly been effected to date in New Orleans, nor in Indianapolis, except as local authorities have been able to work out cooperative arrangements on their own initiative. The reply from the latter city describes mutual aid as "the greatest drawback" to civil defense in that area.

Cooperative arrangements effected involve inter-state aspects at St. Louis, Washington, Cincinnati and Kansas City, and presumably also at New York and Philadelphia, though the replies from those cities do not so indicate. International cooperation is involved at Detroit, where a mutual aid pact has been perfected with the City of Windsor, Ontario, but not apparently at Buffalo.

Particularly active cooperative arrangements are reported... as to New York, Philadelphia, Milwaukee, Buffalo and Minneapolis, involving among other things some provision for regular meetings and interchange of information among civil defense directors and key staff personnel of the central city and the surrounding governmental units.

An agreement in effect in Cuyahoga County (Cleveland) Ohio permits each of its 58 municipalities to contract with the county for coordination of civil defense, paying a contribution based upon its population and assessed valuation. Under this agreement Cleveland's CD Director is designated the county coordinator.

#### Evacuation Plans

From replies received it appears that five of the twenty-two reporting cities may have reasonably well advanced evacuation plans under development. While others report that they are studying, or developing, plans for mass evacuation, Philadelphia, Detroit, Milwaukee, Houston and Minneapolis give evidence of substantial progress along these lines under the current conception of the problem. Philadelphia's active committee of city officials and members of the transportation industry is reported working toward a workable plan which can be subjected to "token" test in November 1954. In Detroit a committee representing primarily affected city departments was reported at work on the "final draft of a workable plan." Milwaukee CD officials report completion of a preliminary traffic plan for wheeled evacuation of the city, with planning for other phases, including enabling legislation, well advanced. Houston held an evacuation drill in June 1954, moving vehicles only from a downtown 350 square block area; final plans being drawn by an Evacuation Committee were to have been completed prior to publication of this report. Minneapolis, also, is reported developing a "blueprint for evacuation," with the traffic control plan the first completed phase.

Replies from a number of the cities... stress the necessity of adequate warning to make evacuation feasible. Chicago, with a "well advanced plan for 'thinning out' of population", calls pre-attack "dispersal of the bulk of remaining residents a logistical operation requiring "sufficient advance warning" to make it possible. Detroit CD officials hold that their plan cannot be put into effect "until Air Forces can assure a longer period of warning against attack." Replies from four other cities also stress the need for ample advance warning -- Baltimore, developing plans, expects not to make them public "until



probable warning time will be sufficient"; New Orleans, with a study of possibilities underway, indicates that plans cannot be implemented "until ECDA and the Air Defense Command can guarantee more advance warning time"; Newark, with apparently no plans, considers evacuation "impractical until such time as the Air Raid Warning Service can give a minimum of six hours advance notice of impending attack"; and Denver is basing formative evacuation plans upon "an assumed warning time of two hours."

### Control Centers

All but three of the twenty-one reporting cities have permanently established control centers; Minneapolis and Atlanta have control centers in temporary locations and Cincinnati has preliminary plans for a main control center underway. A number of the cities report having alternate control centers established, including Chicago and Boston, while several have a number of zone or district control centers, as in Philadelphia, Baltimore, Cleveland, St. Louis, Milwaukee, and Atlanta. New York has a control center in each of its five boroughs, with 23 district control headquarters throughout the city.

There are two developments of interest at the present time with respect to control centers. One is the frequency with which cities are looking for new control center locations "further out" and the other is the thought and action being given to mobile control centers....

St. Louis is seeking alternate control center sites "further out," as are New Orleans and Indianapolis. Milwaukee, with a completely equipped main control center in the far northwest part of the city, is building another in the southwest end of the city. Boston, with its main control center 4-1/2 miles from downtown, has built another eight miles away and is completing another five miles out. Houston is using a control center 6-1/2 miles from the presumed target area and meanwhile planning for another 15 or more miles distant.

Mobile control centers are already available in three reporting cities and are contemplated in two others. Kansas City reports a Secondary Mobile Control Center capable of providing the same service as the Primary Control Center if it is knocked out. Milwaukee has vehicles containing communications equipment and house trailers with administrative equipment and supplies, which have been organized into two dispersed units which may serve as mobile control centers or as zone control centers wherever needed. Newark has a Mobile Radio Transmitting Unit which can be used as an alternate control center. At the time of these reports, Chicago had a mobile control unit "in process of procurement" and Cleveland was "contemplating the purchase of five vehicles, school bus size, to be used for mobile control centers."

### Shelter Programs

Shelter programs reported in replies from twenty-one cities are universally restricted to surveying and marking existing buildings and underground facilities, such as subways, suitable for emergency shelter. No programs for the construction of public shelter facilities were reported.

In a number of cities shelter programs are completed; others are but partially completed or only getting underway. Among the latter groups of cities are Philadelphia, with 60% of located space designated;



Washington, with shelter a current-year project; Houston, now marking shelters after a completed survey; New Orleans, where shelter is "one of our most critical problems"; Cincinnati, which has signs on hand and a shelter program underway; Newark, where downtown shelters have been designated and the program is "gradually expanding" to other areas; Dallas, whose shelter program is "in process"; Indianapolis, where surveys have been completed but few shelters designated; and Denver, where public buildings and some 100 others have been surveyed but require marking.

Several reporting cities have cited figures on the number and capacity of shelters designated. New York has designated 1,299 shelters with a total capacity of 476,036; Boston 350 for 391,200; Minneapolis 12 for 15,000. Philadelphia has designated subway concourses as shelter for 200,000 persons; Detroit reports 50 and Baltimore 40 public shelter locations designated, with capacity figures not indicated. Only Kansas City reports having no shelter program.

Among the replies of 21 cities... there are six where reference is made to the doubtful or diminishing value of shelter programs under the new concept of evacuation. Civil defense officials expressing the thought are those of Chicago, St. Louis, Milwaukee, Houston, Minneapolis and Atlanta. Typical is Milwaukee's comment that "Our shelter program, while not neglected, has been given a minor role since the acceptance of evacuation as the primary means of defense."

#### Industrial Nonmilitary Defense Planning Activities

It has been indicated that the big jobs of keeping our economy going under conditions of an atomic attack will fall on the Federal Government, and on private industry. Where does industry stand in its readiness to meet this responsibility?<sup>5/</sup>

#### Nonmilitary Defense Planning by Industrial Groups

Responding to encouragement by the Departments of Commerce, Interior, and Agriculture, several industries have appointed task forces or committees on industrial defense. These have met with interested Government Department officials to learn something of the problems and then have proceeded to develop their own plans and programs. Of the six reviewed in the Appendix, Section B, one, the National Petroleum Council, reports to the Department of the Interior, and four report to the Business and Defense Services Administration of the Department of Commerce. This is merely for coordination of the programs and the industries have full freedom to develop their own individual programs.

<sup>5/</sup> In the Appendix, Section B, we have summarized a few representative programs developed by industrial groups and a few specific company plans. (See footnote 2, Chapter II, page 6, concerning Appendix.



In connection with the industry-wide approach, the Business and Defense Services Administration of the Department of Commerce reports that the industrial defense program has been presented to 41 industry advisory committees or industry conferences. Twenty-four task forces have been formed to investigate specific industrial defense problems. Eight of these task forces have already completed their assignments. Some seventy additional task forces are presently contemplated. The industry divisions have reported that to date 73 industries have reported serious concentration problems. The solution to many of these problems is being undertaken as a corollary activity of various of the standing task forces such as steel, aluminum, and chemical.

This approach has been largely concentrated in those industries most important to the national defense. The task force of the iron and steel industry has produced a comprehensive industrial defense manual for the steel industry published on September 9, 1954 and made available not only to the steel industry but to other interested industries as well. The chemical task force produced an Emergency and Disaster Planning Manual for chemical and allied industries. This manual was published in November 1953 and has already required a second printing. It is being widely read by industries other than chemical. The rubber industry committee prepared a series of three circular letters entitled "Planning for Continuing Industrial Production of Essentials After Enemy Bombing of Producing Factories" and reports that one positive action resulting from the letters was a request for 1,000 copies of the chemical Manual by the Rubber Manufacturers Association for circulation to the rubber industry. The task force of the sensitized film industry produced an excellent industrial survey of the defense problems of that industry including a comprehensive analysis of concentration problems and recommendations for their alleviation. The aluminum industry has recently appointed a task force composed of representatives of the principal producers of

aluminum in the country and they are currently engaged in a continuity of production survey including consideration of problems of concentration.

#### Individual Company Nonmilitary Defense Plans

Although quite a number of individual companies have begun to develop some aspects of industrial defense plans, stimulated by their industrial groups and by Government agencies, only a few of them have given major attention to the development of a comprehensive nonmilitary defense program.<sup>6/</sup>

The Business and Defense Services Administration of the Department of Commerce reports that the program has been specifically discussed with 313 companies urging them to prepare individual company plans. (This is in addition to 5,000 independent telephone companies which have been approached through general over-all efforts of the communications industry and the BDSA Communications Equipment Division). BDSA reports that of the 313 companies approached, 190 companies presently have individual company plans under consideration or in preparation.

#### U.S. Chamber of Commerce Nonmilitary Defense Planning Activity

Before leaving this brief summary of the status of industrial nonmilitary defense planning activities, some reference should be made to the constructive role played by the U.S. Chamber of Commerce in promoting such activities. The Chamber has taken two important steps in pushing this activity by industry. On June 15, 1954, it convened a Businessmen's Conference on Industrial Defense in the Atomic Age in Washington. Some 250 to 300 of the nation's industrial leaders attended, joined by Government officials and others interested. They heard in this field from Director Arthur S. Flemming and General Willard Paul of ODM, Assistant Secretary Quarles of the Department of Defense, Administrator Val Peterson of the FCDA, Charles Honeywell, Administrator of BDSA in Commerce, as well as from John Redmond of the Koppers Company and General Otto Nelson, Director of Project East

<sup>6/</sup> The present status of planning in four companies is briefly reviewed in the Appendix, Section B. See footnote 2, Chapter II, page 6, concerning Appendix.



River. They participated in significant discussions and saw the technicolor film of the H-Bomb test. The U.S. Chamber has also issued an important statement of national policy with respect to national defense.<sup>7/</sup>

#### Nonmilitary Defense Planning by Community Groups

Here again unfortunately there has been no opportunity to visit communities where voluntary groups and organizations may have been participating in these nonmilitary defense planning activities. It is understood that in certain cities such as Seattle, San Francisco, Dayton, Milwaukee, Baltimore, and Boston certain nongovernmental groups have spearheaded parts of the program. Thus, in Seattle an industrial group originated the industrial dispersion plan which became a model for national policy, and the San Francisco Bay Area Council, representing various civic groups, cooperated with the NSRB and the Stanford Research Institute in one of the first comprehensive metropolitan area nonmilitary defense planning surveys.

The following excerpts from the introduction to the San Francisco study, entitled Community Plan for Industrial Survival (December 31, 1952), suggest the nature of the cooperation of local community groups in this important nonmilitary defense planning effort.

In September 1952, the San Francisco Bay Area Council formed the Bay Area Committee on Post-Attack Industrial Rehabilitation which, with other participants, directly involved over 100 individuals. This number included representatives of industry, labor unions, utilities, civic organizations, local, state and Federal agencies, and other groups concerned with essential industries, ....

The Committee created four working subcommittees of 15-20 members each -- which studied the four problem areas emphasized in this report 1) physical rehabilitation (of facilities), 2) production continuity, 3) manpower, and 4) priorities and legislation.

This joint effort typifies American civic and community responsibility at work!

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<sup>7/</sup> National Chamber's Policies on National Defense, U. S. Chamber of Commerce. Washington, 1954.

## Participation by Individual Citizens

Specific data are not available to reveal the extent to which individual citizens are participating by helping in planning activities, enrolling in civil defense activities and studying and discussing the problems and issues. In general, while some of our people are making their contributions to these programs, most citizens do not appreciate the seriousness of the problem and have not volunteered their services. Several hundred private citizens have been willing to take temporary planning assignments in ODM, BDSA, FCDA, and other Federal agencies, and in state and city planning activities. Other hundreds in industry have been participating in plans for industrial continuity. And, as reported by FCDA (Appendix, Section A <sup>8/</sup>) some 362,000 were enrolled in the Ground Observer Corps on June 30, 1954 (one third of those needed) and a total of 4,600,000 are reported as enrolled in some civil defense activity or training program (again only one third of those needed.) Probably the 4,600,000 figure is inflated since it includes group assignments of employees of many public and private agencies and organizations providing basic public services. There is thus a tremendous task of arousing public understanding of and support for these nonmilitary defense programs if they are to become a reality.

Major Weaknesses in the Present  
Nonmilitary Defense Plans and Programs

Even in this preliminary review, we can observe that of the five major tasks of nonmilitary defense, the one of primary importance -- reduction of target vulnerability -- has scarcely been touched. If we are to have a worthwhile non-military defense, we must disperse our key industrial facilities and urban population concentrations much more effectively and much more rapidly. Money and effort concentrated here will pay the biggest dividends, in insurance of economic sur-

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<sup>8/</sup> See footnote 2, Chapter II, page 6, concerning Appendix.



vival and in long-run benefits in case we avoid a war. This is a job on which industry and the Federal Government must combine their efforts.

With respect to provision of emergency services in time of attack, Federal civil defense plans need strengthening and coordination with other agencies' responsibilities — perhaps chiefly they require more money and staff. At the state and local levels the emergency civil defense activities are weak and poorly supported in most areas, even poorly understood. There are exceptions in some states and some cities, but by and large we do not have effective civil defense plans or public support for these activities. Perhaps the biggest job here is to make the people understand the urgent need for these activities and to persuade Congress and the other legislative bodies, state and local, of the need for adequate financial support of emergency civil defense programs.

Those aspects of planning for economic and financial stability which are largely the Federal Government's responsibility, — price, wage, rent, and rationing controls and standby measures as well as plans for income maintenance and property damage reimbursement — are presently being neglected in a wave of economy which has decimated the planning staffs of ODM and related agencies. The Federal Reserve Board and the Treasury have done some limited planning and preparation for meeting emergency currency and bank credit requirements and have some studies of fiscal requirements under way. Among the major gaps are the lack of planning for income maintenance and property damage reimbursement as well as plans for underwriting our great insurance and other financing institutions. These aspects of providing for financial stability, have scarcely been touched. Among the most important and most complex of the planning problems, they have been given little attention either by government or by private groups and, so far as can be learned, no organized program is even under study in this area.

We are making a good beginning in plans for continuity of industrial production. The Departments of Commerce, Defense, Interior, and Agriculture have been

stimulating such planning among their constituent industries, and in addition several industrial associations and individual manufacturing, utility, and financial companies have been developing their own plans for continuity of production under attack conditions.<sup>9/</sup> Despite these good beginnings, the great bulk of American industry is not fully aware of the urgency of the problem and many industries not only have no present plans — they do not propose to develop them unless they are jarred loose from their present complacency and their belief that it is somebody else's job and not theirs.

Again, with respect to continuity of government functions, the Federal Government plans are fairly well underway for executive agencies, but there is very little such planning on the part of most state and local governments. If sudden disaster should hit some of our large cities, chaotic conditions would prevail because plans for lines of personnel succession, safety of essential records, etc., have not been properly developed. This is one of the major gaps in nonmilitary defense planning. Moreover, one of the greatest weaknesses is that no provisions have been made for the continuity of the essential legislative and judicial functions, at any level of government, Federal, state, or local!

The score is not a good one. Two of the five major tasks almost untouched (reduction of target vulnerability and provision of economic and financial stability), two which require cooperation of Federal, state, and local governments and community groups (civil defense and continuity of government) limping somewhat on the Federal level and still too weak to walk at the state and local levels. As for the fifth task (continuity of industry) some government departments and some industries are doing good pioneering work, but part of the government job goes undone and most of industry has not taken the problem seriously.

There are three major needs if we are to have a nonmilitary defense program worthy of the name:

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<sup>9/</sup> See Appendix, Section A and B. (See footnote 2, Chapter II, page 6 concerning Appendix.)