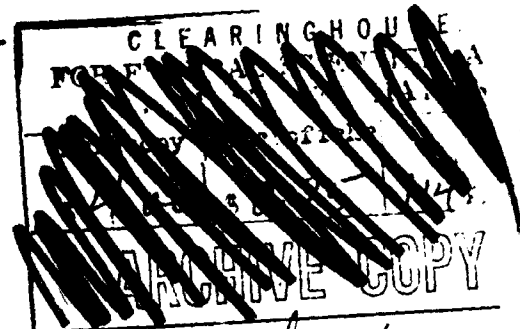


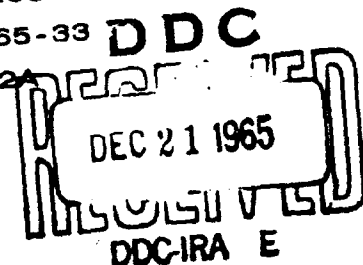
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TRAINING REQUIREMENTS FOR POSTATTACK ADAPTIVE BEHAVIOR

FINAL REPORT



PREPARED FOR:
DEPARTMENT OF THE ARMY
OFFICE OF CIVIL DEFENSE
WASHINGTON, D. C. 20310
CONTRACT OCD-PS-65-33
OCD WORK UNIT 3532A



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Prepared for:

Department of the Army
Office of Civil Defense
Washington, D. C. 20310

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OCD Work Unit 3532A

December 1965

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This report has been reviewed in the Office of Civil Defense and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Office of Civil Defense.

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SUMMARY

This study had as its primary objectives:

1. The identification of actions required of and beneficial to individuals in the post-attack environment.
2. The development of guidelines concerning information and other curricular materials appropriate for training in post-attack adaptive behavior.

The study methods included literature review, discussion with cognizant OCD personnel and private research contractors, and scientific argument based on professional training and experience.

The study concluded that the training of the public for adaptive post-attack behavior was feasible. Three possible periods for training were identified: pre-attack, in-shelter, and post-shelter. Two major training areas were identified: 1) training in basic survival techniques, 2) training for societal recovery.

General training materials can be prepared, distributed, and stocked (in public shelters) pre-attack. Post-attack situations will require that such materials be readily available and used in conjunction with on-the-spot training and creation and communication of specific recovery plans for local communities as estimates of the situation are made.

The study suggests that:

1. Consideration be given to instituting a more intensive and extensive training program initiated and supported by the federal government but conducted mainly at the community level.
2. This program seek to use all suitable and feasible means of educating the public but be based largely on pre-crisis preparation and stocking of training materials for use on a community level when the public is receptive, primarily in time of crisis and during the in-shelter phase of post-attack circumstances.
3. Training materials, including provisions for pre-attack and post-attack distribution of survival handbooks, home disaster packages, documentary films, etc., can be developed immediately.
4. Specific provisions be made for in-shelter training programs, for education of the public in the various requirements of post-attack adaptive behavior; this is in addition to the education now provided with respect to shelter living and the operations of task teams following emergence from shelters. In-shelter training programs would be conducted using small groups (5-10 individuals) and already prepared training materials.
5. Further research be addressed to:
 - a. Surveying community authorities to determine

- 1) Extent of their involvement in civil defense
 - 2) What preparedness measures they have taken in anticipation of their role as authorities in civil defense emergencies
 - 3) What problems there have been in programs which involve a significant degree of public understanding and support
 - 4) What kind of help (e. g. , financial, personnel) they feel is needed to help overcome such problems.
- b. Conducting motivational research on the general public's reaction to various pre-attack training materials, as part of a major re-examination of civil defense procedures for education of the public.
 - c. Undertaking study of the optimum nature and form of the planning aids needed by community chief executives and their functional staffs for in-shelter planning of local recovery operations.
 - d. Determining the most efficient and effective means of providing in-shelter communications between community chief executives and the occupants of other shelters, as an essential requirement for timely and effective organization of initial local recovery measures, the communication of which to the public is the single most important factor in inducing post-shelter adaptive behavior.

I. INTRODUCTION

A. Purpose

The purpose of this research is to develop requirements and guidelines for training to prepare the general population for adaptive post-attack behavior.

The objectives of such training are to reduce the impact on the individual of changes in social and physical environments, and to encourage the enlightened and willing support and participation of the general public in recovery measures. The training guidelines developed give special attention to using the in-shelter phase as a training opportunity, they also examine what could be done in the pre-attack and post-shelter emergence phases. Conclusions and suggestions are drawn bearing on training program decisions, including further research with respect to both methods and disaster behavioral phenomena.

The focus of this effort has been to abstract from the relevant literature the essential factors which enter into consideration of training for adaptive post-attack behavior, and the probable effectiveness of alternative methods of training toward this end. The main thrust of civil defense effort to date has been directed toward delineating and processing the basic physical requirements, organization and planning of civil government to meet a national

emergency, and toward the development of a professional cadre and civilian reserve. For a number of reasons, relatively little attention has been given to educating the general population in its responsibility to protect lives and property after the pindown period and to maintain or restore the services essential to survival. This study is directed primarily toward determining what education and training of the public would be suitable, feasible, and effective in these respects.

B. Scope

Post-shelter behavior is interpreted to include adaptive social and economic behavior, social and legal rights and duties, attitudes and beliefs; and personal "countermeasures" relating to the needs of day-to-day living. Such behavior is considered to be of two kinds: individual behavior which reduces the survival demands of the individual, and of his immediate family group dependents, if any, on society, and the behavior of the individual and his immediate dependents with relation to post-attack society, in ways which enhance public support of and participation in reconstruction measures. Training is construed to include education or orientation, acquisition of skills and knowledge, and transmission of information and directives.

The method of investigation adopted has been designed to illuminate primarily the following areas:

- . Behavior which will be required of, or beneficial to, individuals acting alone, and as members of the general population in the post-attack environment.
- . Differing requirements of heterogeneous shelterees.
- . Nature and extent of the information and other curricula materials appropriate for training conducive to adaptive behavior.
- . Effective methods of communicating the desired information.
- . Probable training effectiveness and level of proficiency which can be achieved.

The training requirements and guidelines developed herein are applicable to the range of damage conditions assumed by the OEP-National Plan for Emergency Preparedness(1)* with respect to a generalized nuclear exchange. The contingencies of possible CW/BW have not been considered in this study. Post-attack training considerations relate primarily to that part of the general public which would be present in organized public shelters

* All references cited throughout this report are indicated by a number in parenthesis corresponding to their order of appearance. A complete listing of source materials is given immediately following section VII.

incident to attack, and would also be generally applicable to the education of individuals surviving by other means. Training opportunities are dealt with in pre-attack, in-shelter, and post-emergence phases separately. For purposes of this study of adaptive behavior, the post-attack period covers the time from emergence from shelters through first phase implementation of the National Plan (1); i. e., the approximate establishment of recovery arrangements contemplated by the present plan. In addition to adaptive individual survival measures, training encompasses the basic education of the public in the need for and nature of applicable plans for societal recovery as well as the requirements which these impose on the general population. It does not include the specialized training of individuals designated, during the in-shelter phase, to become part of teams dealing with in-shelter and post-emergence functions.

C. Study Methods

In carrying out this study, present data and theory have been used. No experiments have been conducted. The basic methods have been those of literature review, scientific argument, and the development of a conceptual framework within which training requirements and guidelines in preparation for adaptive post-attack behavior can be organized in an orderly and logical way. Existing concepts of environments and of survival and recovery measures have been translated into requirements for individual action, utilizing the extensive research which has been undertaken in problem areas

confronting the civil defense cadre and the civilian reserve in preparation for the performance of their respective functions. Attention has also been given to recent research undertaken by Dunlap and Associates, Inc., in related areas.

This study consists of the following steps. Each step is developed in detail in subsequent sections of the report.

- II. Conceptual Framework - a working concept of the derivation of training requirements and guidelines.
- III. Action Requirements - actions required for individual survival and societal recovery.
- IV. Training Requirements - nature of information governing actions appropriate to adaptive behavior.
- V. Training Guidelines - considerations revealed by the analysis of the what, who, when, where and how of adaptive training.
- VI. Training Effectiveness and Individual Proficiency - results which can be expected.
- VII. Conclusions and Suggestions

II. CONCEPTUAL FRAMEWORK

Adaptive behavior is defined as the actions taken by an individual to adapt to new or changed circumstances, sensibly, willingly, and, when appropriate training has been given, knowledgeably. The encouragement and provision for adaptive post-attack behavior by the individuals comprising the general public could prove to be one of the most critical tasks of emergency governmental administrations.

Predominant emphasis in the allocation of limited funds and effort, in the realm of human resources, has been given to the creation of a civil defense cadre and a civilian reserve as the central effort of federal, state, and local emergency preparedness plans and programs. Although basic national policy regards civil defense as a direct responsibility of all levels of government and of all people, the emphasis is on the use of the regularly constituted governmental structure. The policy contemplates the use of volunteers and volunteer organizations to supplement, not replace, trained personnel with emergency assignments and organizations with emergency functions (1, p. 5).

It appears likely that more enlightened and willing support and participation of the public at large will be essential to survival and recovery regardless of the success of civil government in planning to meet its functional responsibilities. Previous researchers (2) have stated that, "If people behave as they have in past disasters, there will be severe obstacles in the way of re-starting the productive processes because of difficulties in getting the survivors to engage in the activities necessary to the reactivation of production (without which) societal recovery cannot occur." Further, Project HARBOR (3, p. 6), in noting the infeasibility of creating a professional cadre of adequate size, recommended both training of a civilian reserve and the establishment of "an in-shelter training proficiency which would be able to teach survivors 'basic nuclear hygiene' and instruct them about post-attack recovery plans and procedures." More thought is being given to increasing the probability that the public would have an adequate understanding of disaster environments and responsibilities. To this end, civil defense planners need to know what individuals require in order that they might plan an intelligent and cooperative role in recovery work. This study seeks to determine the basic knowledge which the individual must have to adapt to such environments and how the needed information can be communicated most effectively and efficiently.

The environmental parameters within which a study of training of this kind can be undertaken are already adequately established despite the unknowns inherent in a civil catastrophe of nuclear proportions.

Weapons effects have been exhaustively studied in other research covering many years. Their probable impact on the physical structure and operation of society has been estimated by responsible authority, extrapolating the circumstances of disasters and weapons effects of lesser magnitude for planning purposes (1, 4, 5, 6, 7, 8, 9, 10, 11, 12). One aspect of the nuclear exchange remains unique: the universality of devastation with its concomitant limitations of availability of external assistance. Regardless, this imponderable affects responses to disaster only in degree and does not preclude their meaningful study (1, 13). The structure and intended functioning of federal, state and local governments in a national emergency has been established by law, and preparations to implement these arrangements are underway at politically acceptable levels of funding. The conclusions reached from studies undertaken on these premises can have logic and validity.

Study of the effects of attacks on the behavior of people has been undertaken but at much lower priority. As has been noted, far less is known about the likely effects of an attack on individual behavior patterns and on the social system as a whole than is known about the physical effects of attack (14, 15). It is inherently a subject about which less can be objectively determined. The incidence of individual maladaptive behavior is always local in nature and

manageable only in that context. Useful work has been done in gaining a better understanding of how behavioral responses to highly stressful circumstances would affect the subsequent recovery of society (2, 14). Although there appear to be significant gaps in present knowledge of disaster behavior, enough is known to permit initial examination of training for preparing the public for adaptive behavior in the post-attack period. Study limitations on the relationship between attack variables and recovery variables influencing behavior, are discussed in the following section, Behavioral Requirements.

Adaptive post-attack behavior is desired in the individual for two purposes: 1) to reduce his vulnerability to environmental changes and his concomitant demands on society, and 2) to enhance the willing and enlightened support and participation of the general public as a whole in bringing about the recovery of society.

The incidence of adaptive post-attack behavior in individuals is a product of several factors of which training is but one. Training finds its relevance as a tool of the governmental structure and must relate to hierarchical responsibilities and functional plans both in content and method. Of the factors governing post-attack adaptive behavior, descriptions of three (1. leadership, 2. emergency administration, 3. training) are sufficient to give an adequate frame of reference for the examination of training requirements and guidelines in this context.

1. Leadership by state and local "chief executives" and their deputies is possibly the most important. Leadership is community political authority acting in accordance with plans developed for incompletely foreseen circumstances. Its primary functions are to inform, to guide, to direct, and to instill hope and purposefulness. The latter are two of the most essential elements of adaptive behavior and the exclusive province of leadership per se. All of these functions involve the communication of information and perspective. This is the public information function of the government. Training programs designed to encourage adaptive behavior must seek to provide the basic facts and technical skills which underlie appropriate responses to environmental change. They are, therefore, important tools of leadership in informing and directing the public and must reflect this functional relationship.

2. Emergency Administration is the bureaucratic structure created by enabling legislation at federal, state and local levels as outlined in The National Plan (1). If soundly conceived and implemented, the operational and administrative arrangements which this plan brings into being will greatly enhance the incidence of adaptive behavior by directing energies into constructive channels and by alleviating frustrations. Since the general population is the human

element of the national resources which the emergency administration must use to initiate recovery, orientation of the public in what is required of it is a major concern. The functioning of the local recovery structure may be seriously handicapped unless explicit provision is made for basic education of the general population in understanding what lies ahead for them and their community, principally a radically new environment and new arrangements for control and leadership to cope with it.

3. Training, the focus of the present study, is the organized communication of information which the individual needs to know in order to adapt to new environments. It is based on an assumption about the relation between adaptive behavior and training, which is supported by other research, in these terms, "The etiology of maladaptive behavior is more likely to be ignorance of appropriate behavior than the inability to function mentally in a relatively normal fashion"

(2, p. 88). This training is separate and distinct from that necessary for the performance of particular tasks requiring particular skills on the part of individuals who are to be members of teams dealing with the various tasks and functions of survival and recovery.

Leadership, administration, and training have a particularly close association in the effective management of one of the most conspicuous phenomena of disaster behavior, namely, the susceptibility of the population at large to the presence or absence of stimuli which would guide the initial, and often sustained, direction of reaction to ambiguous and highly stressful conditions. The opportunity to ameliorate decisively the traumatic impact of disaster comes early and is of relatively short duration. Community leadership and administration, in addition or organizing themselves for actions which are neither understood nor expected of them by the local electorate, must have readily available the means to give the public the needed information whenever it is ready to receive it. Prepared and stocked training and education material forms a significant part of this requirement.

III. BEHAVIORAL REQUIREMENTS

A. General

Adaptive behavior was defined as the actions taken to adapt to new or changed circumstances; sensibly, willingly, and when appropriate training has been given, knowledgeably. To use training to prepare the general population for adaptive post-attack behavior requires the communication of information to individuals which influences their personal behavior in two ways: 1. individual survival and 2. societal recovery.

1. Individual Survival Behavioral Requirements -- actions which are desired in order that the individual reduce his vulnerability to the traumatic effects of attack and reduce his concomitant demands on society, including those of dependent members of his immediate family for whom he may be responsible. Generally speaking, these requirements concern the imperatives of biological survival as these relate to the individual's needs and family responsibilities. For purposes of delineating behavioral requirements, the heterogeneous character of shelterees (the particular segment of the population with which this study is concerned) can be classified in two types: a) able-bodied rational adults, and b) those who are dependent on them for reasons of age, infirmity, or other condition.

2. Societal Recovery Behavioral Requirements -- actions which are desired by the individual in his relation to society under new circumstances; what he needs to know about how society will undertake recovery and what this will require of him and his dependents.

The character of these behavioral requirements is unique in the sense that no known society has had to survive and reconstitute itself following widespread and severe destruction of life and property comparable to that of massive nuclear attack. A massive attack on the basic structure of society would disrupt the normal roles of individuals in many societal processes. How society functions under disaster conditions depends not only on performance of individual roles but also on how individual and primary group patterns of action interact in the complex network which permits the whole structure to carry out essential societal functions. At least one attempt (14, pp. 135-171) has been made to analyze the interaction between "societal resources" and "social requirements."

B. Individual Survival Behavioral Requirements

1. General

Problems of civil defense have brought about increased interest in the impact of disasters on individual behavior (15, 16, 17, 18, 19). The general conclusions of this type of research have been applied to concepts of behavior in disasters caused by massive nuclear attacks (2, 14, 20, 21, 22) although those who undertake to predict such patterns are seldom in agreement. Devastation at the levels envisaged is unprecedented and presents unique problems. Since a useful delineation of adaptive behavioral requirements must take cognizance of the environment in which measures to induce the desired behavior must take effect, it is necessary to hypothesize what this environment is likely to be. The major distinguishing effects of a massive nuclear disaster (in contrast to past disasters) would be intensity, duration, and widespread coverage. Much remains to be known about the reactions of people in such circumstances. Some things can never be known short of actual war. Two separate approaches to this were therefore undertaken as discussed below, the first endeavoring to derive the basic nature of environmental impact, and the second, extrapolating the phenomena of past experience.

2. Derived Environmental Impact

Earlier in the conduct of this study, a potentially useful but incomplete attempt was made to identify the interaction between the individual and his

environment (Second quarterly progress report submitted to OCD, 15 July 1965). In this construct, the individual was viewed as a bundle of "needs" with action capability. Generally speaking, it was assumed that the biological needs of the individual will change but little from pre- to post-attack conditions, but that the manner and extent of need fulfillment will change considerably. Homes, vehicles, utilities, etc., will be destroyed or damaged, and certain new hazards will be introduced into the environment. To be effective, an individual's actions will have to be adaptive in three ways; 1) he will be confronted with previously unencountered requirements; and 2) he will have to perform, at least temporarily, certain functions previously performed for him by society, or 3) he will have to adapt to unsatisfied needs. This particular avenue of research tried to define the special ways in which the survivor would find post-attack life different.

In taking this approach, a beginning was made in analyzing the known types and levels of weapons effects in terms of the destruction or degradation of resources and facilities in each of several "need" areas. In so doing, this study was confronted with a dilemma which has faced all researchers in this area; that the phenomena under study are consequences of attack and the results must be related to specific attack patterns even though they become enmeshed in a large number of independent variables presenting the researcher with an almost insurmountable task (14). A description of the attempt to develop

a useful matrix of those variables influencing behavior, and of the partial results achieved, are given in Appendix A. Further work along these lines might be useful as an element of basic research in the psychology of nuclear disaster. It is also possible that the specifics of damage so developed could be gathered together in a form which would be a valuable planning tool for local authorities to use during the in-shelter phase, as intelligence of the actual damage conditions in their respective communities become available. Communicating throughout a community the details of this local plan as it is developed by local authority would, as is discussed later under Training Requirements, contribute directly and significantly to adaptive behavior. However, further pursuit of this approach in the context of the present study was not considered warranted. The tentative conclusions reached by this derivative process, as these concern behavioral and information requirements, have been subsumed into the process described below.

3. Characteristics of Individuals Under Stress

The dominant symptoms of individual maladaptive behavior of concern to biological survival are listed below. They are derived from study of research literature in this area and from the derivative process described in the preceding paragraph.

- . Withdrawal from association with others
- . Loss of will to live or to make adjustment
- . Unreasonable fear or panic
- . Refusal to eat or to respond to proffered assistance
- . Hostility toward authority
- . Despair and purposelessness
- . Guilt
- . Frustration
- . Fatalism
- . Dangerous curiosity

4. Behavioral Requirements

Adaptive survival behavior required of individuals consists of the four basic actions listed below. For purposes of illustration and to provide the framework for subsequent development of the specifics of corresponding training requirements, the categories of objectives with respect to which adaptive actions must be taken, are given under each.

- . For basic survival, the individual must:
 - Avoid hazards (radiation, contaminated food and water, accidental injury situation, disease)

- Conserve resources (food and water, clothing, medical supplies and facilities, shelter, production and service materials and facilities)
- Seek self sufficiency in health (energy conservation/sleep/rest, temperature/humidity control, mental, first aid)
- Make corresponding provision for dependents (special cases of above)

C. Societal Recovery Behavioral Requirements

1. General

The training of the individual, undertaken with a view of reducing the burden which he and his immediate dependents impose on society, concerns survival. On the other hand, the interaction between the individual and society underlies the whole planned recovery effort. The enlightened and willing support and participation of the general public is essential to recovery and is the essence of the adaptive behavior sought through training. The disaster environments anticipated are authoritatively established for planning purposes. The impact of these radically altered environments on the behavior of people and their functioning within societal groups is reasonably well understood and, in terms of maladaptive behavior, represents the psychological environment within which adaptive behavior takes place. In the following paragraphs, the

estimated character of maladaptive behavior is summarized in the form of a behavioral syndrome, followed by specification of the general nature of the adaptive behavior desired in these circumstances. The specific informational requirements needed with respect to the more important of appropriate actions are discussed in detail in Section V, Training Requirements, including the interfaces between training, leadership, and emergency administration.

2. Characteristics of Societies Under Stress

Extrapolating the experience of past disasters to disasters of nuclear order of magnitude (2), the principal characteristics of behavioral impact on the functioning of society can be expected to include the following:

- . There may be an abrupt and continuing change in basic values, most obviously with respect to property and status
- . The primary group, largely the family, will become dominant indefinitely
- . A marked contraction of time will become evident with almost exclusive emphasis on short term pursuit of primary values
- . There will be a substantial dissolution of secondary groups, and of societal functions such as production

. Loss of normal leaders will confuse and attenuate lines of civil authority

. The initial impact will be one of aggravated confusion, ignorance, and indecision.

3. Basic Adaptive Behavioral Requirements

Gaining the enlightened and willing support and participation of the general population requires substantial public understanding of three things: 1) what is happening, 2) the significance of what is happening, and 3) what must be done about it. Leadership, administration, and training are involved to a greater or lesser degree in each. The first definition and dissemination of information concerning what is happening is almost exclusively a leadership function in the sense that it involves the public information function. Imparting an adequate understanding of the significance of events, and what should be done, is a part of leadership and administrative functions which can be well served by the training process, particularly if prior arrangements have been made.

Assuming that an adequate level of prior training of the individual in survival techniques has been accomplished by appropriate means, the behavior desired in the individual in his relationship to society and its

reconstruction, should take the following general form:

- . Exhibit a willingness to make the effort to understand the nature of national and local post-attack circumstances, recovery plans, and operational requirements imposed on the general public
- . Exhibit a willingness to forego short term non-vital interests of oneself and one's family group, and take part in societal recovery measures as the best means of assuring the long range interests of the primary group
- . Acquire the knowledge and capacity to act intelligently and co-operatively in support of community recovery measures and in compliance with its operational requirements

The specific information requirements which must be met in order to give the individual the knowledge of actions appropriate to adaptive behavior are developed in the following section, "Training Requirements."

IV. TRAINING REQUIREMENTS

A. General

Training or information communication requirements are the basic substance of the training process to which this section is addressed. The principal variables of breadth and depth of coverage are functions, in part, of suitability, feasibility and effectiveness of alternative methods of training discussed in ensuing sections. The analyses of training requirements given below with respect to individual survival and to societal recovery seek to identify the minimal informational coverage necessary for appropriate adaptive action by the average able-bodied rational adult.

B. Individual Survival Training Requirements

1. General

The essential elements of information for adaptive survival behavior are those which would permit the individual to avoid hazards, conserve resources, be self-sufficient in maintenance of health, and make corresponding provision for those dependent on him. Information of this type is straightforward and its application universal. The basic facts are reasonably well known. The coverage outlined below is addressed to both the skills and the understanding desired in the individual, rather than the particular facts to be imparted. It has been derived from several sources which have undertaken to

deal with various aspects of this basic training (23, 24, 25, 26). This functional breakout of topical material is given primarily to indicate the nature and extent of the coverage with which the development of training guidelines must be concerned.

2. Coverage

a. Medical, Sanitation and Health

- . Basic principles of first aid*
- . Control of rodents, vermin, and insects
- . Common remedies for common illnesses
- . Conservation of clothing
- . Precautions for illness prevention
- . Use of improvised heating devices
- . Symptoms and care of radiation sickness
- . Healthful living in emergencies
- . Disposal of refuse and human waste
- . Cleaning without soap and detergents

*Note: This coverage should include psychological first aid and the psychological aspects of survival since these bear directly on problems of adaptive behavior in disaster (16, 27). The probable limited effectiveness of training of this kind is discussed in section V.

b. Radiological Protection

- . Nature and sources of radiation hazards
- . Detection and measuring of radiation hazards
- . Decontaminating person and facilities
- . Marking and reporting of radiation hazards

c. Food and Water

- . Safe and unsafe edible foods
- . Food spoilage and water contamination
- . Purification of food and water
- . Budgeting food and water supplies
- . Collection and use of rain water
- . Preservation of water supplies
- . Planting survival gardens

d. Safety and Rescue

- . Electrical, fire, and structural hazards
- . Rescue operations
- . Clearing debris safely
- . General safe practices

C. Societal Recovery Training Requirements

1. General

Although the content of training applicable to individual survival is extensive and well established, that which would be appropriate to adaptive behavior in the recovery process has not yet been adequately delineated nor been made the object of a concerted planning effort. The reasons for this circumstance are many, some of the more important of which are discussed below. Cognizance must be taken of these causes because they govern coverage and constrain remedial action.

The major difficulty in formalizing training requirements of this nature has been visualizing the specifics of local action over a wide range of disruptive circumstances, all hypothetical. Adaptive behavior is always individual and, in this instance, takes place in the context of community recovery operations. Although the governmental structure of emergency preparedness is a joint responsibility of federal, state and community authorities under federal direction and control, the recovery operations to which the individual should be responsive are local in character. The training leading to enlightened and willing support, i. e., adaptive behavior, must therefore be applicable to a particular community although much of the background material, and most of the support for such programs, could be of federal origin. Adequate preparation for the conduct of this training would necessarily be based on the completion

of local operational plans and the existence of local initiative to carry the process through to the desired conclusion.

At this time, there does not appear to be any training for this specific purpose called for in the civil defense literature and recovery planning guidance provided by OCD and OEP. There are a number of provisions for educating the public in the essentials of particular tasks for which some agency or cadre member is responsible. This activity, however, is ancillary, and regarded primarily from the point of view of an official who is concerned with the performance of a recovery function for which he is a responsible cadre planner. The basic issue may be the fact that overall education of the general population for post-emergence adaptive behavior is the province of local political leadership, identification and acceptance of which in this emergency context is perhaps the most uncertain yet critical part of all operational plans.

Training in preparation for post-attack adaptive behavior should be regarded as a tool of leadership and of emergency administration. The latter's primary concern with training is 1) giving a selected nucleus of trainables the specifics of skills required to perform particular tasks and functions essential to survival and recovery; and 2) giving the public enough understanding of these processes to ensure that it grasps their nature and importance and will, therefore, cooperate freely and sensibly. It is local leadership's stake in the training of the general public that is of the most immediate and direct

importance to recovery. Determining what training can and should be performed must, therefore, reflect the character and functioning of disaster leadership at the community level. It seems not unlikely that the inherently tentative nature of this leadership is a formidable obstacle for civil government to overcome in preparing to inform the public.

The many political subdivisions within states produce highly varied types of political authority. Local leadership varies accordingly. There is one characteristic, however, which is common to all such authorities. It is that each official is elected through due process by an electorate which considers, by and large, that its best interests will be served by so doing. In each societal element, there is a distinctive role which elected authority is expected to play and this role is well understood by him. By its very nature, local authority has traditionally been expected to perform roles in a purely local context. The possibility of local war, however, has changed this. Science and technology, in the form of potentially severe local disasters, has altered irrevocably the way communities should look on their control of their own destinies. Communities simply do not think of themselves in terms of this possibility. The probability is that they never will do so unless nuclear war becomes a clear and continuing danger over a long period of time. Generally speaking, local authorities are not elected because they are deemed to be the kinds of persons who would be cool and capable in time of great danger.

Since they are not expected to perform in such a role, they do not think of the responsibilities of their offices in these terms. Nor is it by any means certain that elected leaders would survive or that they would have influence commensurate with their statutory authority if they did. Nevertheless, it is local political leadership who would, should attack occur, have either to lead in producing adaptive behavior by the general public, or to overcome maladaptive shortcomings in achieving local recovery.

The result of this sociological circumstance is readily discernible. The local political authority who should have the most interest in adaptive behavior is generally unaware of the requirement for it and of what measures can and should be taken to acquit his responsibilities therefor. The conclusion is inescapable that some authority outside the community must take the initiative in providing local leaders with what they will need in training materials to use if attack comes, or when a crisis opportunity presents itself to bring appropriate issues effectively to local attention before attack. This agency is probably the federal government.

It appears likely that the federal structure will have to take the initiative in this matter. The training coverage indicated below could in part be completed in suitable form by the Office of Civil Defense, but the remainder would have to be supplied by community government on the basis of local and state operational plans.

2. Coverage

The coverage outlined below is given to illustrate the type and extent of appropriate material for purposes of further examination in this study of suitability, feasibility and probable effectiveness of alternative training methods. Although it is not a suggested curriculum for direct development into lesson plans, it does cover the topical areas which would provide individuals information concerning those actions which would be regarded as appropriate, adaptive responses under the circumstances. It is drawn from a number of relevant national civil defense policy and planning documents and from studies and operational plans for local civil defense requirements and arrangements (1, 28, 29, 30, 31, 32, 33, 34, 35, 36).

a. National Impact of Damage

This initial education should have as its purpose conveying an understanding of the national impact of the nuclear exchange, and the conditions within which local, state and national recovery must take place. Understanding is sought with respect to:

- . Loss of production capacity and necessity of conserving resources of all kinds
- . Destruction or damage of transportation systems and substantial cessation of interstate commerce

- . Primacy of national survival effort in allocation of limited resources
- . Necessity for local self-sufficiency and control of allocation of goods and services

b. Structure and Organization of Authority

The purpose of this coverage should be to convey an understanding of the nature and process of the governmental structure contemplated by statute and by the National Plan, including:

- . Arrangements for continuity of government
- . Federal and state emergency powers and organization
- . Function and organization of military forces in civil defense
- . Local authority and organization

c. Local Organization for Recovery

The purpose of this coverage should be to provide an understanding of the local organization and tentative arrangement called for by the community emergency plan, including readiness measures, responsibilities, organization, and activities with respect to the following:

- . Emergency welfare services
 - Lodging for displaced persons
 - Mass feeding arrangements

- Clothing distribution
 - Registration and inquiry arrangements for displaced and missing persons
 - Social services for special groups
 - Necessity for family plans built around community plan
- . Emergency health services
- Centralized control and coordination of all local health services and resources
 - Necessity for family member prepared to meet basic health and medical needs
 - General arrangements for public sanitation, food and water inspection and supplies, registration and disposal of dead, vital statistics services, etc.
- . Emergency manpower
- Expected voluntary contribution of each individual and employer
 - Governmental emergency powers
 - Manpower relocation policies
- . Transportation
- Federal, state and local resource allocation powers and policies
 - Repair and control of highways and waterways

- . Telecommunication
 - Governmental control
 - Restrictions and use at local level
- . Food and Water
 - Controls over primary and secondary resources
 - Family responsibilities for personal stock
 - Local arrangements for collection and distribution of non-family sources
- . Fuel and Energy
 - Federal authority and primacy of defense
 - Primary and secondary resources
 - Local plans
- . Resource Management
 - Controls due to production lead time
 - Need for voluntary cooperation of citizens, industry, labor
- . Economic Stabilization
 - Objectives and requirements
 - Local controls and arrangements

- . Housing
 - Organization and controls
- . Government Operation
 - Maintenance of civil order
 - Public information arrangements

d. Mitigation of Psychological Disturbances

The purpose of this element of training would be to give to the rational adult a synthesis of common sense rules for influencing the emotional behavior of others in emergencies. Although this aspect of crisis phenomena may have been given more attention than it deserves, a relatively minor effort could probably reach enough rational individuals to produce a significant result. Dealing with this complex area is not an attempt to approximate the functions of a clinical psychologist. Rather, it is a summary of policy and standard operating procedures which are useful guides to appropriate adaptive actions. In effect it is an extension of the adaptive processes and conditioning experiences during in-shelter living.

The following suggestions indicate the type of material which might be included under this heading:

- . adopt policy of helping people separated from their families and relatives as the best means of optimizing the chances that

separated members of one's own family will be cared for by others

- . children, and many emotionally unstable but otherwise mature adults, will be quick to become excited if the heads of their families do
- . placing an encouraging interpretation on a turn of events immediately after it happens may prove of lasting value, whereas the failure to so interpret may cause long-term difficulties
- . in an emergency, keeping people busy and responsible for someone or some function is the best way to avoid their developing undue anxieties

3. In-shelter Operational Planning Directives

There is an important aspect of training for adaptive behavior which falls on the interface between preparatory training in advance of an emergency, and the transmission of information and directives incident to the actual conduct of recovery planning and operations. The coverage outlined in preceding paragraphs relates primarily to the concepts, policies and responsibilities of operational plans prepared locally to cover the broad spectrum of contingencies

in nuclear and other disaster situations within a community. Although public education in these aspects of civil defense would be an important contribution to post-attack adaptive behavior, it is apparent that communicating to shelterees the details of the local recovery plan as it develops would be of great value and possibly critical importance in terms of adaptive behavior following emergence from shelters.

The execution of a community's basic operation plan commences with the acquisition of intelligence by local authority concerning the conditions outside with which the community must subsequently deal. If local arrangements for continuity of government have been reasonably effective and if there is communication available between the community chief executive and his principal subordinates, the assessment of damage and formulation of plans for organizing the community can proceed without delay. Under such circumstances, all of the directives which govern the initial requirements imposed on the general public can be communicated. This aspect of in-shelter training conveys both the rationale and the authoritative direction of responsible officials. It automatically provides a major part of the information which individuals need to determine what actions are appropriate and, when combined with basic survival/recovery education, what are the more obvious consequences of maladaptive behavior. To the extent that these measures are considered to be training, they become the single most important and, at the

same time, the most effective element of training for post-attack adaptive behavior which could be undertaken. For this and other reasons apart from training, the availability of adequate between-shelter communications for the use of local political authority in planning for emergence from shelters becomes a matter of high priority.

V. TRAINING GUIDELINES

A. Introduction

The guidelines developed in the course of this project are based essentially on the state of the civil defense art that presently exists. As such, they represent reasonable estimates of what might be done at the present time to prepare the general public for adaptive post-attack behavior. The suggestions offered do not attempt to anticipate possible changes in national circumstances. As the nature of the training parameters changes, there will be a need for refining and/or modifying the training guidelines.

The information and analyses presented in previous sections of this report provide the framework within which the suggestions developed in this section have been based. Specific behavioral and informational requirements of training have already been given--only topical areas of training will be referred to in this section.

Two major training areas were suggested in the previous sections: 1) individual survival training; and 2) role of the individual in societal recovery activities. The question of how, when, where and who to train forms the basis of the present section.

For purposes of analysis and presentation, it appeared useful to discuss training guidelines in terms of when training should or could logically be initiated. This classification by time-phasing could then form the basis for examining other aspects of the training problem. Accordingly, three possible periods for training were chosen:

1. Pre-attack -- that time available for training before an attack or warning of attack
2. In-shelter during and post-attack -- that time during and following an attack in which the public is available for training in public shelters
3. Post-attack Post-shelter -- that time after emergence from shelters, continuing through the first phase implementation of recovery plans

It appeared from the outset of this study that no one of the above described periods would afford fully adequate opportunity to meet all the demands of survival and recovery preparation. All three periods were examined to determine to what extent it might be feasible to undertake training and education in each of them.

These periods, therefore, have been used as a point of departure for discussing specific training guidelines. The discussion which follows examines what might be done in each period to conduct an efficient and effective training program for the purposes stated.

B. Training Guidelines: Pre-Attack

1. General

The lack of concern of the general public for civil defense preparedness has raised doubts in many minds as to the feasibility of training for post-attack adaptive behavior prior to attack. Numerous attitude studies (37, 38, 39, 40, 41) have pointed out the unwillingness of many citizens even to consider the need for taking simple precautionary measures to safeguard themselves and their families....safeguards which are well within their capability. This attitude is manifested in a number of ways: little or no interest in shelters, either home or public, a general lack of interest in civil defense courses, and paucity of volunteers for membership in organized civil defense teams. Evidence of this kind is persuasive, but should not in itself be regarded as conclusive where training is concerned.

The public's unwillingness to accept disaster or civil defense training per se is based on several factors. Certain of these factors, however, are more concrete and manageable than others in the sense that presentation of facts, accurately and dispassionately over a period of time, is a potentially valuable function of the contemplated training process. Two such aspects are the public's unwillingness to accept the fact that: 1) an attack is possible, and 2) it is possible to take precautionary measures which would tend to minimize

the effects of such an attack. These alone are sufficient to limit severely the training of the general public. The basic attitude toward preparation for possible disaster must somehow be altered since the essential prerequisite to effective training is motivation to learn. Some have postulated that attempts to increase public motivation will be accompanied by undesirable anxiety in our own people, and, on the part of an enemy, suspicion of either our national intentions or emotional stability. There is also the prevailing conviction that it is substantially impossible to motivate the public unless it is thoroughly scared. Such views have thus far effectively inhibited the concerted development of a direct program for training the public beyond that of encouraging education of the general public through regular mass media coverage of newsworthy material.

This study concluded at an early date that these constraints in public attitudes and motivation, although real, should not arbitrarily preclude examination of what additionally might be done to contribute to the preparation of the public before attack for post-attack adaptive behavior.

2. Training Requirements and Conditions of Training--Pre-Attack

It appears feasible to initiate training efforts in both the two major training requirements areas discussed previously:

- . Individual survival
- . Individual/societal recovery

For purposes of outlining a training program for each of these two areas, it is important to recognize the existence of two distinct periods or conditions which might prevail during the pre-attack period:

- . Non-crisis Period -- that is, a period in which world tensions, while present, are at a fairly low level,
- . Crisis Period -- period in which world tensions have risen to fairly high levels (e.g., Cuban crisis).

During non-crisis situations public motivation to prepare for possible disasters is extremely low....the need for such information, knowledge, or skill is conceived as having little or no significance by the majority of the public.

Public motivation can be expected to heighten during crisis situations. Such periods are evidenced by increased awareness of possible national involvement in war, and therefore increased concern over what precautions can and should be taken to safeguard against such a possibility.

These facts have important implications for the development of effective training programs for communicating the elements of each of the two training requirements.

3. Individual Survival Training--Non-Crisis Situations

The theme of training during this period should be general training for a wide range of useful skills, knowledge or information applicable to general types of disaster situations. Indeed, nuclear war presents only one new qualitative element for the post-attack situation. . . . that of radiation (42), and, therefore, there is no reason why most training during this period cannot cover general disaster countermeasures quite effectively without arousing undue anxiety in the public concerning nuclear war and its concomitants.

Regardless of the lack of public motivation to learn, the non-crisis pre-attack phase has many advantages as a training period for partially preparing the general public for post-attack adaptive behavior. Several factors support this:

- Educational facilities and materials are widely available

(Physical facilities are intact; visual aids can be prepared and employed with little or no difficulty; mass media including radio, television, newspapers are available, etc.)

- . Population is highly mobile. (Transportation to and from educational facilities presents no problem for most of the general public.)
- . Basic needs of population satisfied. (The problems which constrain training during a disaster situation, such as food, water, and other basic needs, are not present thereby allowing a much more desirable and flexible training environment.)
- . Flexibility in time and sequencing of training. (Freedom from pressing time constraints and specific ordering or presentation is more evident during this period.)
- . Availability and mobility of instructors. (Greater possibility to recruit, train, and distribute teaching staff.)
- . Large segment of population coverage. (Training during the pre-attack period can reach many individuals, some of whom may not be in public shelters. This may be the only exposure to the essential considerations of adaptive behavior that such people experience.)
- . Relieve burden on subsequent training. (Those for whom pre-attack training has been effective can greatly facilitate in-shelter training programs by acting as teaching assistants and information communicators.)

- . Homogeneous training populations. (During the pre-attack period it is possible to train using already existing and identifiable homogeneous population subgroups such as school classes, work groups, etc.)

a. Training Different Populations

For purposes of developing training guidelines for the pre-attack period, it seems useful to classify the trainable population according to age, sex, and principal role activity. Several categories can readily be identified. The classification serves the purpose of identifying possible training places as well.

- . School age population (including college)

- .. in school curriculum

- .. extra-curricular activities (Boy Scouts, Y.M.C.A., 4-H Club, etc.)

- .. home

- . Adult population

- .. Females

- home

- work

- social groups

- .. Males

- home

- work

- social groups

For purposes of pre-attack training it is useful to recognize the existence of training opportunities among accepted and well organized role activities which form a part of the individual's normal living pattern. All training efforts should be directed toward integrating civil defense and related training into these normal living patterns.

1) School Age Population

For school age children (12-18 years) enrolled in junior and senior high schools, the educational system offers an excellent opportunity to present some preparatory training for disaster situations. Economic and social system processes during emergency situations can readily be worked into curricula in civics, history, sociology, psychology, and related courses.

The effects of nuclear weapons, including discussions of radiation, blast, and heat, could be effectively presented in physics and chemistry courses.

The use of self instructional (programmed texts) for the school age population should be considered for outside the classroom assignments in civil defense related areas. There is already available a programmed text for an introductory first aid course. The use of this type of instruction deserves investigation for other training problem areas.

In addition to the school environment, school age children participate in extra-curricular activities such as boy and girl scouts, 4-H clubs, junior red cross, YMCA, YWCA, etc., all of which present an excellent opportunity for training for adaptive post-attack behavior. The use of visiting lecturers (from locally trained personnel, OCD schools, etc.) should be considered as a possibility in this regard.

The training of young people of school age is viewed as one of the more useful approaches to training for post-attack adaptive behavior. These people exert a considerable influence on their parents' state of knowledge and attitudes toward acceptance and learning of new materials. One example of this phenomena was seen in the introduction of the "new math" in school curricula. School boards have been so swamped with parents' questions that a number of "new math" courses for parents have been instituted.

The college setting offers another opportunity for presentation of civil defense and related material. Elective courses could be inserted in college curriculum for interested students. College convocation series offer useful opportunities for trained personnel to present materials relating to survival. College students are often innovators--when their interest is aroused, they can organize and recruit very effectively.

2) The Adult Population

Several possibilities exist for pre-attack training of adult populations.

These center around the organized work and recreational activities which form a part of an individual's every day activities.

a) Working population. Most men, and a substantial portion of women, are wage earners of some kind. The possibility of introducing disaster training into organized work groups should be considered under the auspices of both labor and management if possible. Organizations such as the American Society for Training and Development, American Association of Personnel Administrators, etc., should be knowledgeable about the possibilities and problems which such programs might present.

b) Social groups. A majority of the adult population are members of organized social groups of either religious, recreational, civic, or educational nature. The opportunities for presenting useful preparatory information and skills through these groups should be considerable.

Many welcome guest speakers at their meetings. The use of such groups should afford means of reaching a substantial part of the adult population.

c) The home. The home environment presents the best opportunity for utilizing mass media to communicate essential elements of information

whenever a crisis situation might call for media use in this way.

The basic vehicles of communication are radio, television and newspapers. To date, the use of such media for purposes of civil defense education has been very limited. The important thing appears to be having suitable mass media coverage prepared and available for timely use when the situation permits.

b. Trainers

In considering the possibility of using educational and social groups, as well as the mass media, for educating the general public, the following appear to be the most suitable sources of the needed instruction:

- 1) Graduates of OCD training centers
- 2) Teachers (secondary and college)
- 3) Labor and industrial personnel organizers
- 4) Social group leaders
- 5) Red Cross personnel
- 6) Police and fire personnel
- 7) Scout and youth activity leaders

The use of these resources of trainers must be accompanied by a corresponding instructor training program. This implies an extension and reinforcement of the Civil Defense Adult Education Program currently underway through

the U. S. Office of Education. Accelerated recruitment of additional instructors and ways of speeding up the training process are possibilities which should be examined.

c. Training Methods

It is apparent that efforts during this period to educate the public through techniques which rely on self-motivation and study will have very limited effectiveness. The general public cannot be expected to seek information on its own initiative. Unless people are scared, they will by and large remain passive and unconcerned with civil defense as they do in matters of remote threats to personal health and safety.

The material they need must therefore be prepared in simple, predigested form and brought to them whenever and wherever opportunity may offer.

The principal method of communicating the desired information in the situations outlined above are, by and large, lecture/demonstration type presentations. The constraints within which these instructors will necessarily operate, require that they be given all available assistance in the matter of materials for training. Otherwise marginal training effectiveness can be significantly enhanced if well prepared, high quality visual aids, such as films, graphic charts and slides, are available for use.

The teaching aids presently used for training CD cadre personnel should be reviewed with this in mind. The difficulties of reaching the public in these respects are so formidable that no effort should be spared to improve training aid effectiveness. An extensive listing and evaluation of such training aids was the object of a study recently completed by Dunlap and Associates, Inc. (43).

d. Individual Survival Training--Crisis Situations

The increase in motivation to learn during crisis situations creates a very valuable training opportunity for the communication of information relevant to individual adaptive behavior. For training purposes, the most important element in this transmission effort is that of time....that is, it is essential to reach the public with as much material as possible within the heightened motivation period.

Prepared training materials should be on hand ready for use prior to actual crises situations. It is suggested that two major packages be considered in this regard:

- 1) Home Disaster Guide--similar to the poison guide, or first aid booklet which is found in many homes. Such a guide would contain precautionary measures relating to disaster countermeasures.
- 2) Mass Media Materials--various preprepared materials for immediate presentation through mass media channels of communication including:

- . newspaper articles (series extending through crisis periods)
- . educational television presentations
- . radio programs directed toward individual countermeasure activities
- . special news presentation of similar disaster situations (presented over television networks).

Home disaster packages could take the form of individual booklets such as those already prepared and distributed by OCD, HEW, (e.g., 44, 45, 46, 47, 48, 49, 50) or a fairly complete textbook type package similar to the survival guide prepared by Dr. Suggs (25) which would contain separate chapters for each of the several possible disaster occurrences (e.g., first aid, radiation, food, etc.). Distribution of such materials could be achieved in several ways:

- . supermarkets
- . local mailing lists
- . through school children
- . welcome wagons
- . etc.

Such home packages, even if not read upon receipt, would serve as ready references for possible future use.

Mass media presentations would be able to reach many people in relatively short periods. Special programs reviewing past disasters including films, etc., should prove most valuable in this regard (e.g., 51, 52).

e. Societal Recovery Training--Non-Crisis Situations

The non-crisis situation would appear to be a fairly poor period in which to attempt to communicate to the public information relating to societal recovery phases and activities. It is considered that specific efforts to train in this area should not be given emphasis in the pre-attack non-crisis periods. It is reasonable to expect that general survival training suggested for the pre-attack non-crisis situation will, in fact, facilitate societal recovery indirectly.

f. Societal Recovery Training--Crisis Situations

Generally speaking, the suggestions offered for individual survival training during the crisis situation apply to societal recovery training (i.e., use of television, radio, etc.). Efforts should be devoted to generating new materials and/or modifying old materials which are directed toward presenting the big picture as to societal recovery efforts and the manner in which the individual can play a constructive role in such activities.

Already prepared instructional and informational materials relating to societal recovery should be distributed during crisis situations along with other materials presented in the home disaster package. Specific contents would include, 1) local planning and emergency functioning during disaster, and 2) general information relating to state and national recovery programs.

Pamphlets have already been prepared along these general lines (e.g., 57). Similar materials should be prepared at the local level during the general plan for organization and functioning for emergency situations.

C. Training Guidelines: In-shelter During and Post-attack

1. Introduction

No amount of training during the pre-attack period can be expected to give the general public all the information, knowledge and skills which they will need during the survival and recovery effort. Some never will have learned much, others will have forgotten what they learned; certain vital facts will not have been communicated because knowledge of specific and unusual requirements resulting from such an attack is lacking. By and large, the training program for the in-shelter period should assume little or no knowledge or preparation on the part of the general public. In designing such programs, this assumption is probably the most valid one to take at the present time. Any preparation in terms of knowledge, skills, or information brought to the shelter, however, can be expected to greatly facilitate the post-attack training program. For those individuals who have never had it, this training will be of great value; for those who learned but have forgotten--a refresher course would be welcomed.

During the post-attack situation individuals can be expected to be highly motivated to do what is required of them (2, 54). From the training point of view, it is essential that shelters be stocked not only with necessary survival items (food,

water, etc.) but also with those training materials which can form the nucleus of an effective countermeasure program. Indeed, the stockpiling of training materials even if they were not used, would serve, in part, the functions of 1) assuring the public that the government had not been remiss in preparing for this contingency and 2) that resources for recovery were present. From the recovery standpoint the in-shelter period is a vital one in terms of training needs and opportunities for fulfilling these needs.

2. Training Objectives

Individual survival and societal recovery behavioral and training requirements were examined in detail in sections III and IV respectively. For purposes of the examination of training methods in this section, these basic requirements are recapitulated in the following form:

a. Individual Survival Training

The essential elements of information which would permit the individual to avoid hazards, conserve resources, be self-sufficient in maintenance of health, and make corresponding arrangements for those dependent on him.

b. Societal Recovery Training

- 1) National impact of damage, the national nature of societal recovery processes,

- 2) Structure and organization of authority, a general understanding of the organized emergency recovery effort on national, state and local levels with particular reference to continuity of government and functions thereof,
- 3) Local organization and plans for recovery, the local operations plan which, as damage assessment and personnel resources become available, will be put into effect,
- 4) Mitigation of psychological disturbances, the common sense rule for influencing emotional behavior in emergencies by the rational adult in contributing to orderly progress of societal recovery
- 5) Control and direction of the recovery effort, communication to shelterees of the details of post-shelter emergence plans as they develop, and the issuance of the directives of local recovery authority to the general public.

3. Organization for Training

The central issue during the in-shelter period is the availability of a trained, responsible public official who will assume overall responsibility for the shelter activities. The training being considered would be one of his many concerns.

The training guidelines presented for the in-shelter period are based on the assumption that one or more of the civil defense cadre (e. g., shelter managers) will be present in most of the public shelters throughout the United States. Current civil defense training programs have as an objective, the availability of a trained civil defense shelter manager in each public shelter. A major consideration of the present study is the extent to which these officials, if present, could be expected to provide instruction to individual shelters without any preparation beyond that now provided. Basically, the role of the shelter manager and his team is viewed as that of a communicator of vital information and a leader for organization purposes. Beyond this, his role, for example, as an actual instructor, must be considered to be seriously limited due to his inevitable work load.

It is unlikely that the shelter manager or his staff will be able to devote much time to instructing in basic survival techniques although they could readily organize such an effort. Recent studies conducted by Dunlap and Associates, Inc., (53) seem to indicate that members of the CD cadre, if present in public shelters, will be much too involved in administrative matters to devote more than a nominal amount of time to instruction.

Shelter managers in most communities would have official status as representatives of local political authority, with responsibilities to carry out using the authority delegated to them. In this capacity, they are expected to provide the

general public with information relating to the status of the shelter and its provisions, the extent of damage outside, the constraints within which the shelter must operate, etc. Providing for in-shelter training of shelterees should logically be a part of the overall shelter manager training program and one for which specific and separate provision should be made.

Training for shelter managers and support staff currently involves these functions and responsibilities. As guidelines for implementing training materials and training content for the general public are realized, the CD cadre should be well versed in the overall in-shelter training process.

Shelter managers should be responsible for the overall initial organization and preparation of shelterees for the extended shelter period. They will be responsible for 1) communicating knowledge of the situation, 2) orientation to shelter living, and 3) organization of training activities.

It is suggested that within each shelter provision be made for separating shelterees into small discussion groups of from 5-10 individuals. Separation might be accomplished through the identification of pre-shelter family and close friendship groups. A natural tendency to congregate among families, friends and relatives will no doubt occur automatically (2, 54). Additional grouping (e.g., on the basis of age, dependency) should be the responsibility of the shelter leader. Rules for grouping should be included in his training. Individuals who were separated from their normal family group would most logically be assigned to an ad hoc group for care and training.

Each such small group would have a leader designated by the shelter manager on the basis of previous CD experience, age, education, etc. Each group leader would be responsible for the safety and instruction of his own group members, and would report directly to the shelter manager or his designated deputies.

The schema outlined herein is similar to that presented in AIR's Guide to Shelter Organization and Management (23). The important organizational factor is that family and close friendship ties would form the basis of grouping, thereby helping to reduce some of the trauma of the disaster situation. It would be a mistake to divide people into unfamiliar groupings unless the situation made it unavoidable.

Studies dealing with the psychological aspects of disaster situations have generally concluded that individuals seek interpersonal relations during and following disaster (2, 15, 54). The use of family and close friendship as a basis for grouping should help to insure more active participation by shelterees.

4. Training Materials and Methods

The material presented in the early parts of the shelter stay (i. e., knowledge of situation, orientation to shelter living) should be presented by lecture/demonstration type presentations, preferably by the shelter managers. This training technique should be employed periodically throughout the shelter period whenever vital information relating to special communications on hazards, environmental conditions, etc., are to be reported to the shelterees.

By and large, most training materials suggested should be in textbook form. Self-instructional materials have been suggested as a major possibility in this regard (54) in one shelter occupancy study.

Visual aids should be kept to a minimum....perhaps a blackboard, paper, and pencils or crayons.

The group discussion method, a useful technique for creating morale and cooperativeness, should only be used in those areas where some degree of knowledge by shelterees has already been achieved.

Further research is obviously in order in the area of the influence and effectiveness of training methods under shelter conditions. AIR's work (54) in this area has begun to prove fruitful in this regard.

It is suggested that for purposes of training the public, three major training packages be stocked in all public fallout shelters: 1) a guide for shelter managers; 2) a survival and recovery handbook; and 3) material for primary group leaders.

a. Guide for Shelter Managers. Essentially this guide would contain information similar to that contained in AIR's Guide to Shelter Organization and Management (23). Additional information should be given regarding how to organize shelterees by groups for effective and efficient shelter activities and training functions. Perhaps a separate additional or modified version of this guide might

be placed in all shelters for an emergent leader should a shelter manager not be present in a particular shelter.

b. Survival and Recovery Handbook. This collection of information could consist of a single body of material or of separate pamphlets, possibly in loose-leaf form. It should cover all the basic survival techniques and requirements outlined in section IV. It would also provide for basic indoctrination in the concepts, organization and requirements of the National Plan at federal, state and local levels. These two aspects of information would provide the individual with substantially all he would need to know, short of the details of the local recovery plan as it developed in the context of the existing situation.

c. Material for Family Group Leaders. This would be a guide given to all family group leaders designated by the shelter manager. It would supplement the information given in the survival and recovery handbook and, in addition, provide suggestions for teaching and instructing the individual. In effect, it would be a guide in the same style as an "instructor copy" of a classroom textbook. In order to ease the burden on the shelter manager, directions and suggestions should be included for presentation of material and testing for comprehension.

These materials will cover all essentials of basic survival and recovery actions. The specific hazards to be encountered at the local level, and information relating to the implementation of local, state and national plans for societal recovery can only be communicated once authoritative damage assessments become available.

If there are communications between shelters, and some authority present (e.g., mayor), then specific recovery plans can be and should be developed during this pinned-down period and these plans communicated to shelterees as quickly as possible. Such information should be given by one of the shelter authorities in a mass shelter presentation.

5. Sequencing of Information/Training

An essential factor in the development of training guidelines for the in-shelter period particularly is that of order of presentation of material (i.e., priority and other criteria).

Generally speaking, the order of presentation of the overall training objectives pointed out earlier in this section is the one which is most logical:

- . Knowledge of the situation,
- . Orientation to shelter living,
- . Basic survival techniques,
- . Basic individual survival and societal recovery processes,
- . Specific local, state and national recovery plans.

All training materials previously recommended should follow this general order. In addition, particular attention should be paid to dividing each general area into logically self-contained and easily identifiable instructional units (e.g., first aid, radiation, etc.). The desirability of small self-contained units stems from the probability that within each shelter conditions may differ considerably insofar as the priority and/or necessity for particular training is concerned. For example, if within a particular shelter area there is present a highly trained medical team of sufficient size to handle all casualties there would be no immediate need for instructing in first aid training for the general public.

The shelter manager should be responsible for the priority of training sequence which he could base on all the information fed to him by his deputies.

6. Heterogeneous Shelterees

An important consideration in: 1) the design of training materials; and 2) the organization and functioning of the in-shelter activities is that of the characteristics of the surviving population. Of particular concern is that of geographic distribution, age, sex, and educational level of the general public likely to be in shelter following a massive attack.

A fairly recent study, HSR, 1963, The Post-attack Demography of the U. S. (55) concluded that following either the Holifield or Spadefork attack there would be only slight shifts in the composition of the U. S. One exception to this

general conclusion was that 17% of all husbands or wives would be widowed, and that 26% of the nations' children would lose one or both parents. (This latter fact supports the desirability of the establishment of small family type groups within the shelter with attention to the caring for and protection of children as well as serving a training function.) This same study pointed out that only very minor shifts in the age and sex distribution would result from either of the ten hypothetical attacks reviewed.

Working under the assumption of little or no change in composition or distribution of the surviving population, it is possible to use current statistics regarding the educational level of the nation's populace. The percent of persons 25 years old and over with less than 5 years of schooling completed totaled 8.3% in 1960 (56). The median school years completed by persons 25 years and over was in 1960, 10.6 years.

It is recommended that all printed instructional aids stockpiled in the public shelters be designed for a sixth grade reading level. While this would result in approximately 10-15% of the nation's populace not being able to use the materials, it seems logical to expect that most of the vital facts could be presented through verbal means to such persons during the in-shelter and post-shelter periods.

Another factor considered important is that of language. There are two major languages in the U.S. today--English and Spanish. The exact percentage of Spanish speaking people in the U.S. is not known (all statistics group, for example Puerto Rico with the U.S.). In many areas there exist large numbers of such Spanish speaking groups. It is suggested that either: 1) all instructor's and individual materials be printed in both languages; or 2) separate language versions be stocked in shelters in proportion to estimates of need derived from surveys of geographic origins throughout the U.S. down to the community level.

D. Training Guidelines: Post-shelter

1. Training Objectives

Much less is known concerning the nature of the post-shelter period than either the pre-attack or the in-shelter period. Numerous writers have speculated as to the economic, social, educational, industrial processes. Some have even offered solutions to problems which couldn't be specified. It is not our intention to follow this speculative path...but rather to outline what we feel can be logically and generally expected to transpire during the recovery process.

The major education and training requirements for post-shelter activities would most likely include:

- . Basic survival techniques (especially hazard avoidance)
- . Information/knowledge of available resources
- . Knowledge of individual/societal recovery processes

a. Training in basic survival techniques will have already been covered during the in-shelter training period. The survival handbook should serve as ready reference for each adult group leader and those under his responsibility (as designated by the shelter manager).

Specific hazards peculiar to each community within the United States will need to be communicated to all survivors within their respective areas. There is no way of knowing in advance what these will be. Transmission of such facts should probably be started in the in-shelter period and continue as estimates of the situation crystallize.

b. Information/knowledge of available resources. Here, again, each community will have differing resources available following an attack. Some communities will no doubt require rapid assistance from perhaps distant areas. The manner in which basic survival resources are to be obtained, stored, and distributed needs to be communicated to the surviving population.

c. Individual/societal recovery processes. Each community will have overall responsibility for the recovery of its physical production facilities and the allocation of personnel and raw materials. Assistance and direction will likely come from higher political authorities as the country begins rebuilding itself. All survivors will need to be instructed in the need for cooperation and perhaps new roles which its members must play. (Some individuals will need to be trained in new skill areas to help fill specific area or region requirements.)

Two observations on the probable nature of training in this phase assume considerable importance. First, it should be noted that substantially the only training materials which will be used will be those prepared prior to attack.

There will be neither time nor facilities to produce any after the attack.

Secondly, arrangements for both survival and recovery training of individuals will have stressed the use of the able bodied rational adult and the primary group. It will be these same individuals and primary groups who will form the structure for political direction and control of the general population during recovery. This association of pre- and post-attack sociological functions is natural--and possibly inevitable--although civil defense training arrangements do not provide for them now. Both these considerations reinforce the two most important factors in adaptive training... advance preparation of materials and the use of the family type training group.

2. Methods of Communicating Required Information

The bulk of information which individuals will require during the post-shelter period will need to be developed as estimates of the post-attack situation. By and large, such information is not amenable to a standard text or other fixed presentation format which can be prepared prior to an attack.

Universal survival techniques and general societal recovery planning have been suggested for inclusion in training sessions within shelters. Specifics to each area, however, will have to be generated by local authorities in conjunction with higher political authorities following an actual attack.

This does not imply that planning for local recovery should not be commenced pre-attack--it definitely should. Such plans could and should be communicated to the public on a local level as soon as they are formulated sufficiently well. Education along these lines can be a vital part of pre-attack training at the local level. The specifics of recovery, however, can only be generated and communicated following an attack.

There will exist a need for some organized communication link between the public and those political and civil defense authorities who will form estimates of the situation and directives concerning societal recovery organization and resource allocation.

It is expected that communication of information during the initial post-shelter recovery period will depend heavily upon emergency communication systems such as police radios, citizens' band radio, telephones, amateur radio, EBS communications, etc.

Communications, once mass media resume, can make use of pamphlets, radio perhaps, newspapers, and public address systems (fixed and mobile). Local political authority, acting in close coordination with the 1) state and national political entities and 2) with civil defense personnel, should assume major responsibility for this vital communication process.

VI. PROBABLE TRAINING EFFECTIVENESS

Effectiveness in training of the general public for post-attack adaptive behavior cannot be measured short of war itself. One alternative means of assessment might be to extrapolate direct observation of disasters of lesser magnitude occurring in areas where adaptive training had been conducted in some form. Any measure of effectiveness regardless of how reached, would be an estimate of the degree to which the purposes of training had been achieved specifically: 1) how sensibly and skillfully individuals observed the basic rules of biological survival; and 2) how willing and enlightened was public support of, and participation in, community recovery measures.

The most logical and useful way to estimate the probable effectiveness of adaptive training is to compare two conditions: 1) the results which could reasonably be expected, were no special provisions made for training (i. e., the present circumstance), and 2) the condition which might obtain if the nominal training measures suggested in the preceding section were carried to a logical conclusion. In examining these contrasting conditions, the two basic categories of training requirements (i. e., individual survival and societal recovery) will be considered separately.

Individual Survival

The basic techniques of first aid are widely disseminated in this country, quite apart from the considerations of civil defense. Other problems associated with maintenance of health under disaster conditions are less well known, although many of the more important details have been in the public domain long enough to become common sense rules of health. Examples are: boiling water to prevent typhoid fever contagion, avoiding body lice and vermin to avoid typhus fever. There are, of course, many cases where the services provided by society; e.g., utilities, pasteurization of milk, etc., would be seriously interrupted and present threats to health of which the public by and large had little awareness. The conspicuous characteristic of the postattack world would, over the long term, be a severe and continuing degradation in everyone's standard of living, depending on the nature of the attack. It is conceivable that the societal recovery process may result in substantial changes in general class structure and value systems of survivors.

The failure of individuals to survive as the result of inability to cope with conditions during the post-shelter emergence period would be regrettable. In terms of impact on societal recovery, however, these losses would be of relatively small moment compared with the loss of life sustained directly as the result of attack although a secondary wave of mortalities would seriously impede the recovery process. Recovery would, however, be adversely affected by the

otherwise unnecessary diversions of limited human and material resources to the care of the incapacitated. This is comparable to the impact of the non-fatal as compared with the fatal wounds of soldiers in battle which have such serious consequences for the ability to sustain effective military action over a protracted period of time.

It is reasonable to conclude the following from these considerations:

- knowledge of much of the common sense of survival techniques is widespread in the normal conditions of society, but there would be serious gaps in areas beyond common experience; i.e., radiological contamination, "wilderness" survival techniques, etc.
- the effect of failure of individuals to possess, or to acquire, adequate knowledge of survival techniques would have a significant impact on societal recovery processes both through diversion of scarce resources, and from morale considerations.

There is no reason to hope that more than a small percentage of the public can be induced to study these techniques before a crisis or an attack. There is, however, every expectation that, if the material needed to train is available when the motivation exists, there will be a marked and highly significant increase in the level of individual survival. The scientific and technical knowledge needed already exists. The cost of preparing and stocking training materials is relatively minor. The rewards of so doing should be large.

Societal Recovery

In contrast to individual survival training in preparation for adaptive post-attack behavior, the requirements for societal recovery will be extremely difficult to meet under the most favorable circumstances. Psychological preparedness to deal realistically with nuclear disaster is substantially non-existent on a national scale. This circumstance may be permanent and susceptible to change only through prolonged and severe crisis. It adversely affects the situation which adaptive training is intended to ameliorate, in two ways: 1) the public at large may not support an adequate national effort in civil defense, in effect rejecting the possibility of nuclear exchange as a significant national threat which must be faced up to, and 2) the amorphous nature of local civil defense organizations and operational plans gives little hope that the arrangement needed to deal resolutely and effectively with community disruptions at these levels of intensity would exist to a required degree.

Under present circumstances, it is probable that the onset of nuclear war would find the nation in a highly disorganized and confused condition. This is perhaps inevitable, and, initially at least, possibly acceptable. The alleviation of this condition can only be achieved by three things: 1) a more highly developed CD cadre and civilian reserve, 2) adequate prior communication arrangements for continuity of government, including local communications for development and organization of the community operations plan, and 3) prior arrangement for education of the public when it is prepared to learn what it should know to survive and recover.

It is considered unlikely that the first two of the above measures would be reliable as a means of ensuring an acceptable level of adaptive behavior, even if fully implemented. There still exists the problem of giving individuals a large number of facts and considerations in a short and highly stressful period of time. There does not appear to be a reasonable chance of doing this unless prior preparation for this training has been made. The minimum requirement is incorporation of this type of training in planned shelter programs and the stocking of prepared training material. These means offer significant and possibly critical increase in the ability of community leadership to influence the behavior of the general population in its adjustment to traumatic environmental changes. This training is a tool of local leadership, without which it may not be able to perform its recovery functions.

VII. CONCLUSIONS AND SUGGESTIONS

A. Conclusions

1. Training Requirements

a. The post-attack adaptive behavior sought through training should be of two principal kinds:

1) Requirements for individual survival

- acts and characteristics of an individual which are necessary to reduce his vulnerability to the traumatic effects of environmental changes, and to reduce his demands on society, including those of dependent members of his immediate family for whom he may be responsible.

2) Requirements for societal recovery

- acts and characteristics of an individual which are necessary in his relations with societal elements involved in recovery operations, in order to enhance his willing and enlightened support and participation of the general public as a whole.

b. The object of training in preparation for adaptive post-attack behavior should be the able bodied, rational adult not formally associated with the civil defense cadre or civilian reserve.

c. The principal objective of training in preparation for adaptive behavior should be to communicate to the individual the information he needs in order to know what behavior is appropriate under the circumstances. Maladaptive behavior is considered more likely to occur as the result of ignorance of appropriate actions, than from other causes such as amoral, lawless, or asocial motives.

d. Acts which contribute to societal functioning, are essential to recovery since without them the vital societal processes for the production of goods and services cannot be resumed.

e. Within the context of the emergency functions of State and Federal governments and or presidential leadership in national survival and recovery measures, adaptive behavior by the general population under disaster conditions is influenced by three factors:

1. The exercise of community leadership which should inform, guide, and set standards of public behavior.
2. The functioning of the community emergency administrative structure which should facilitate and channel the energies of the public in constructive ways through organization and direction of recovery operations.
3. The conduct of training as a tool of both leadership and administration, which imparts the informational, skill and knowledge requirements needed for adaptive behavior.

f. Training of the general public for adaptive behavior, although not now widely accepted as a tool of community leadership and administration, must be developed in this context, and specific provisions made for it well beyond any which now appear to be contemplated.

g. Training designed to meet requirements for individual survival is concerned primarily with education in the biological imperatives of highly stressful physical environments, with the added hazard of radiological effects.

h. Training to provide the requirements for societal recovery is an extension of the public information function of political leadership. Given public awareness of the circumstances of a disaster, training should provide for understanding of the individual and social significance of what is happening and what will be done about it, in terms of basic education in the emergency functioning of society and the individual citizen's role in recovery processes.

i. Although public understanding and support of the national basis of societal recovery is a prime objective of the federal emergency preparedness structure, the actions required of individuals take place in a local community context. The actions have societal significance in the functioning of the political subdivisions and divisions of which that community is a part. Training towards societal recovery must therefore be conducted in the context of the local community efforts and its part in larger political, economic, and psychosocial processes.

j. The public's current lack of interest in civil defense is a social and political phenomenon which may not change in the foreseeable future short of grave and continuing crises or general war. Accepting this lack of motivation to learn, the most significant impediment to training the general population is the amorphous nature of local political leadership in matters of emergency preparedness planning and preparations.

k. Training for adaptive behavior should be a tool of local leadership and emergency administrative structures. The need for this tool is not well understood by local political leadership because these authorities do not conceive of themselves, nor does the electorate so conceive them, as having an important role in these respects.

l. Although local authority is substantially unaware of it, there is a need for prior preparation and stockpiling of training materials for use in educating the public when war or crises provides heightened motivation. Although training to prepare for post-attack adaptive behavior can, under certain limited circumstances, be undertaken before a nuclear exchange, it will be maximally effective if adequate pre-attack preparation has been made to use it as an immediately available post-attack tool of leadership and administration. The initiative for preparing such material will have to come from the federal government.

2. Training Guidelines

a. Individual survival training requirements can best be met as follows:

1) Pre-attack

- Non-crisis

- Encourage coverage of basic material in school curricula, group education within industrial and commercial organizations, presentation to social and fraternal groups, etc.
- Prepare and stock for subsequent use as described below:
 - . a "survival handbook" (or set of handbooks) which could contain the essential techniques of biological survival (and the basic facts about recovery organization and processes) which the responsible adult should possess when an emergency occurs,
 - . a few high-quality training films prepared for the same audience,
 - . newspaper material for crisis publication.
- Develop and prosecute the concept of a "home disaster package" which would be a heavy manila envelope in a secure but available place in each home, containing a

collection of countermeasure pamphlets and other emergency information in other appropriate form.

- Crisis

- Issue quantities of pertinent pamphlets.
- Show films on educational TV and, if practicable, special showings on regular channels.
- Provide newspapers with appropriate coverage of basic survival material.

2) Post-attack

Using pre-stocked material:

- Ensure coverage of basic survival information during in-shelter training phase,
- Have "survival handbooks" available for issue to individual shelterees and heads of primary groups.

3) Post-attack/Post-shelter

- Conduct further training as needed, by using
 - Previously prepared training materials (employed pre-attack and post-attack in shelter),
 - Special information as it becomes available.
- Communicate information and knowledge by employing mass media and other means such as public meeting places as the local situation allows.

b. Societal recovery training requirements can best be met as

follows:

1) Pre-attack

- General

- By federal sponsorship of a limited number of high quality documentary films on societal recovery from disaster, for showing on educational TV and to social, industrial, business, educational and professional groups.
- Make specific provisions for this type of education in the National Plan, the Civil Defense Guide, and in appropriate OCD programs for research, development and procurement.
- With adequate federal support of state and local authority, develop and stock in shelters basic educational material designed to inform the individual of the nature of civil organization and plans for recovery, and of the individual's responsibility to support and participate in these plans; the material should be part of the "survival handbook."
- Prepare to train and educate during the in-shelter phase, by organizational designation of an instructor

through arrangement between local political authority and the shelter managers concerned.

- Publicize the local civil defense plan both before and during crisis.

- Non-crisis

- Prepare training materials (films, "survival handbook", mass media releases, etc.) for use when subsequent motivation exists either in crisis or post-attack phase.
- Expand the civil defense adult education program by all practicable means.
- Conduct basic education of public through presentations to social, industrial, business and professional groups.

- Crisis

- Intensify program suggested above.
- Use prepared materials and mass media to extent feasible.

2) Post-attack/In-shelter

- Conduct intensive in-shelter training with previously prepared training materials, including general aspects of local and national plans.

- Conduct in-shelter training on all aspects of societal recovery as information is received and plans formulated by shelter authorities.

B. Suggestions

1. That consideration be given to instituting a more intensive and extensive program, initiated and supported by the federal government but prepared and conducted by local civil authority, to train the general public in preparation for post-attack adaptive behavior.
2. That this program seek to utilize all suitable and feasible means of educating the public but be based largely on pre-crisis preparation and stocking of training materials for use by local civil authority when the public is receptive, primarily in time of crisis and while in-shelter.
3. That the means developed for such a program include the following:
 - a. A "survival handbook" containing the basic information relating to survival, for use where suitable in pre-attack training of the available public, but principally for stocking in public shelters for use as the basic document for post-attack use.
 - b. A "home disaster" package in the form of a heavy manila envelope to contain pamphlet information useful in all kinds of disaster or emergency situations including civil defense related countermeasures.

c. Documentary films of high quality for use as opportunity occurs, in providing the public with essential elements of individual survival and of societal recovery processes.

4. Make specific provisions in shelter arrangements and training programs, for educating the public in the information requirements of post-attack adaptive behavior; this is in addition to the training now provided.

5. That further research addressed to training of the general public in preparation for adaptive behavior be conducted along the following lines:

a. Make a survey among community authorities to determine:

- 1) extent of their involvement in civil defense,
- 2) what preparedness measures they have taken in anticipation of their role as political authorities in civil defense emergencies,
- 3) what problems there have been in programs which involve a significant degree of public understanding and support,
- 4) what kind of help (e.g., financial, personnel) they feel is needed to help overcome such problems.

b. Conduct motivational research on the general public's reaction to various pre-attack training materials as part of a major re-examination of civil defense procedures for education of the public.

c. Undertake a study of the optimum nature and form of the planning aids needed by community chief executives and their functional staffs for in-shelter planning of local recovery operations.

d. Determine the most efficient and effective means of providing in-shelter communications between community chief executives and the occupants of other shelters, as an essential requirement for timely and effective organization of initial local recovery measures, the communication of which to the public is the single most important factor in inducing post-shelter emergency adaptive behavior.

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APPENDIX

DERIVED ENVIRONMENTAL IMPACT

1. Purpose

The purpose of this annex is to describe the initial phase of a potentially useful avenue of research into individual behavioral phenomena under disaster conditions. The concept is developed only to a point sufficient to illustrate the techniques and possibilities of this method. The conclusions reached from this part of the present study effort have been subsumed into the results of direct extrapolation of weapons effects impact, as analyzed in existing civil defense literature.

2. General

Problems of post-attack adaptive behavior arise from the interaction of the individual and his environment. The individual can be viewed as having several different kinds of needs including biological, social and psychological. Requirements for adaptive behavior can partially be determined by analyzing the interactions between needs on the one hand, and environmental changes on the other.

3. Needs

The needs of individuals can be considered in three categories:

a. Immediate biological needs which must be satisfied or the individual will perish

- . Water
- . Food
- . Temperature and humidity control
- . Rest, including sleep
- . Air
- . Pain relief
- . Hazard avoidance

b. Longer range/second order needs which are essential to long term survival and which the individual can, for the most part, fulfill himself with limited dependence on society

- . Hygiene
- . Mental health
- . Clothing
- . Shelter (not fallout)
- . Personal protection

c. Learned psychological needs which are regarded by individuals as important to them but which are not essential to their biological survival

- . Recreation (leisure)
- . Religion
- . Privacy
- . Achievement
- . Recognition

4. Societal Functions

In what might be termed a "modern" society such as ours, individuals have come to enjoy need satisfaction through the functioning of several well-established processes. These include:

- . Production
- . Transportation
- . Employment (source of income)
- . Communication
- . Services
- . Distribution of resources
- . Control
- . Economic monetary system
- . Personal property protection
- . Education

Environmental Impact on Needs

For certain of these need areas, the possible impacts of weapons effects have been systematically examined, giving attention to the potential range of attack and the post-attack timing of the effects. Table 1 is illustrative of the vulnerability aspects of this type of analysis. Table 2 gives a sample analysis of the first and higher order interactions among needs and their related functions, to provide a basis for subsequent detailed analysis of the operational environment. Table 3 is a summary of the results of Tables 1 and 2 in matrix form. The ultimate product of this type of approach would be a definitive analysis of individual needs and societal functions in the form illustrated with respect to "water" on the page following Table 3.

	Blast	Fire	Radiation (Initial & Residual)	Secondary Effects/Comments
Water	Possible destruction of source and/or connection, if remote from survivors. Level of blast required to disrupt mains precludes survivors in immediate area (several miles).	Heavy demands for fire-fighting may cause shortage. Disruption of service for any length of time due to fire is unlikely.	Possible short-term contamination. Radiological decay and natural decanting will reduce contamination to acceptable emergency level. Further reduction is a system problem.	Failure of processing system may result in delivery of impure water. Failure of delivery system may lead to use of impure supplies. Knowledge of system and extra-system procedures is required. Degradation of sanitation system.
Food	Raw (on the hoof) foods may be destroyed. Processed and stored foods should be relatively unaffected.	Capable of destroying both processed and unprocessed foods. Degree of destruction depends on location and extent of fire-spread.	Sealed foodstuffs existing after blast unlikely to be contaminated. Fallout can be removed by washing or otherwise treating fallout as dirt. New growth in postattack period is likely to be internally contaminated.	Blast may expose processed foodstuffs to looting and contamination. Some raw foodstuffs may be salvageable if properly treated immediately after attack.
Temperature and Humidity Control	Structures are blast sensitive, clothing is not. Light blast will destroy private frame and veneer masonry homes without inflicting heavy casualties. Power distribution system may be disrupted.	Widespread fires will destroy private homes, interiors of public buildings, clothing and the raw material to replace these items. Power distribution centers and fuel supplies may be destroyed.	No lasting or integral effect. Simple decontamination procedures will recover.	Destruction of large built-up areas may create building grounds for rodents and insects. A possible counter-effect: the need for fuel may lead to a natural clean-up in searching the wreckage.

Table 1 - Sample Worksheet

Biological Needs Vs. Effects (Vulnerability Analysis)

Page 2 of 2 Pages

	<u>Blast</u>	<u>Fire</u>	<u>Radiation</u> (Initial & Residual)	<u>Secondary</u> <u>Effects/Comments</u>
Rest	Destruction of homes may make adjustment to new facilities necessary. In extreme cases rest may be very difficult, but never impossible.	Same as Blast.	No effect in post-shelter period.	Inability to rest fully and properly may lead to irritability, uncooperative, and standard performance. Increase susceptibility to disease and direct effects of attack likely. Higher injury rate likely.
Air	No effect.	No effect (in open places).	There will be ambient radiation due to long term fallout, but this hazard will have to be endured..	Destruction of air conditioning and ventilation systems may reduce the utility of some structures.

Table 2 - Sample Worksheet

Interaction Analysis

Page 1 of 2 Pages

	<u>Water</u>	<u>Food</u>	<u>T&H Control</u>	<u>Rest</u>
Water			Evaporative Air Conditioning Systems.	
Food				
T&H Control	Increase demand for potable water.	Increase caloric requirements.		
Rest				
Air				
Pain Relief				
Hazard Avoid.	Affect ability to obtain or use water.	Affect ability to obtain or use food.		Relief of pain necessary for adequate rest.
Sanitation	Affect purity of water, bad on system.	Affect purity of raw foodstuffs.		
Hygiene	Has effect upon purity of water.	Affect purity of processed and served foods.		
Medical Care	Has effect upon purity of water.	Has effect on purity of processed and served foods.		
Clothing			A means of control. Inadequate or improper clothing increases need for appropriate shelter.	
Shelter	Same as T&H Control above.	Same as T&H Control above.		Necessary for adequate rest.

Table 2 - Sample Worksheet

Page 2 of 2 Pages

Interaction Analysis

	<u>Water</u>	<u>Food</u>	<u>T&H Control</u>	<u>Rest</u>
Pers Prot.				Security required for adequate rest.
Transport.	Water must be transported from source by water lines or vehicle.	Essential.	Necessary only in long run for construction, maintenance material, and as used by utilities.	
Employ.		Necessary to obtain w/o welfare.	Same.	
Commun.				
Services		Will affect those who "eat out."	Necessary for maintenance of mechanical equipment.	
Distribution		Essential (different than Transport. ?).	Same as Transportation.	
Control		Necessary to prevent waste.		
Economy	Necessary if community source.	Necessary.		

Table 3

INITIAL TABULATION OF SELECTED NEEDS AND SOCIETAL FUNCTION INTERACTIONS

	Water	Food	T&H	Rest	Air	Pain Relief	Hazard Avoid.	Sanitation	Hygiene	Med. Care	Clothing	Shelter	Pers. Prot.	Transport.	Employ.	Commun.	Services	Distribution	Control	Economy
Water																				
Food																				
T&H	1	1																		
Rest			1																	
Air																				
Pain Relief																				
Hazard Avoid.																				
Sanitation																				
Hygiene																				
Med. Care																				
Clothing																				
Shelter																				
Pers. Prot.																				
Transport.																				
Employ.																				
Commun.																				
Services																				
Distribution																				
Control																				
Economy																				

- 1 Some relationship
- 2 Important
- 3 Nearly essential
- 4 Essential
- 5 The two items are equivalent at this intersection

5. Analysis of Individual Need and Societal Functions

a. Water

Water is both a critical item for biological survival and a critical functional resource. While both radiological and biological contamination of water are possible, it is unlikely that radiological contamination will present a problem to the individual. We base this assumption on the observation that people prefer clear water and that any process, such as decanting, which removes particle-type impurities from the water will remove most of the radioactive contaminants. Biological contamination, on the other hand, is not associated directly with such visible impurities, and is therefore more insidious.

It is not unlikely that either biological or radiological contamination will affect the utility of water as a functional resource except in such functions as hygiene and production (specifically, the production and processing of foodstuffs).

A totally different possible effect, however, is that of releasing the potential energy stored in a reservoir through destruction of the dam, for example. This would make the energy thus released unavailable for distribution in electrical form or for direct application to other processes at the site.

So much for the significance of water. In the following paragraphs we shall discuss the effects of degradation of other functions upon the water "system".

b. Sanitation

Inoperative or degraded sanitation systems may result in lowered quantities of useable water and/or overloaded purification systems due to extreme contamination or introduction of new contaminants. Severe blast may cause leakage in sewer lines resulting in contaminated water supplies, but we do not believe this likely. This is more of a reconstruction problem than an immediate post-attack operational one.

c. Hygiene

Personal hygiene, aside from sanitary practices, is not likely to affect water supply, except indirectly through state of health.

The ultimate product of this effort will be a complete, revised quantitative analysis of the type presented in the above paragraphs. From these, general statements of individual behavioral requirements can be extracted or inferred. These statements will provide the basis for determination of training requirements.

CIVIL DEFENSE RELATED PROJECTS IN WHICH

DUNLAP AND ASSOCIATES, INC., HAS PARTICIPATED

<u>Project Title</u>	<u>Contractor</u>	<u>Contract No.</u>	<u>Date</u>
Procedures for Managing Large Fallout Shelters	Office of Civil and Defense Mobilization	CDM-SR-59-36	April 1960
Civil Defense Protection for Institutionalized Populations	Department of Health, Edu- cation and Welfare	SA-2281	10 Jan. 1961
A Guide to the Evaluation of Radiation Hazards	Office of Civil and Defense Mobilization	OCD 59-36	16 Jan. 1961
A Guide to the Evaluation of Radiation Hazards in Home Fallout Shelters	Office of Civil and Defense Mobilization	CDM-SR-60-57	17 Feb. 1961
Survey of Existing Fallout Shelter Facilities and Recom- mended Modifications for Twenty-three New York State Institutions	New York State Department of Public Works	C-15172	October 1961
Survey of Existing Fallout Shelter Facilities and Recom- mended Modifications for Four Public Schools and One Private School in New Canaan, Conn.	Superintendent of Schools, Town of New Canaan, Conn.		18 Dec. 1961
Survey of Existing Fallout Shelter Facilities in the Brunswick School, Greenwich, Conn.	Brunswick School, Greenwich, Conn.		19 Jan. 1962

CIVIL DEFENSE RELATED PROJECTS IN WHICH

DUNLAP AND ASSOCIATES, INC., HAS PARTICIPATED

(CONTINUED)

<u>Project Title</u>	<u>Contractor</u>	<u>Contract No.</u>	<u>Date</u>
Physiological and Psychological Effects of Overloading Fallout Shelters	Office of Civil Defense	OCD-OS-62-137	15 Apr. 1963
Testing Civil Defense Plans and Operations at the Federal, State and Local Levels	Office of Civil Defense	OCD-OS-62-60	31 May 1963
Requirements for Local Planning to Cover Hazards of Fallout Volume I	Office of Civil Defense, Department of the Army	OCD-OS-63-161	January 1965
Requirements for Local Planning to Cover Hazards of Fallout Volume II	Office of Civil Defense, Department of the Army	OCD-OS-63-161	January 1965
Study of Civil Defense Training Aids	Office of Civil Defense	OCD-PS-64-257	March 1965
Shelter Management Phase I Analytical Report--Emergency Operations Systems Development	Stanford Research Ins.	SRI Subcontract B-81864(5420-502) Prime Contract OCD-PS-65-62	October 1965

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This study is aimed at 1) identifying actions required of and beneficial to individuals in a post-attack environment and 2) developing guidelines concerning content and methods of training which would generate adaptive behavior. Methods of study were limited to literature review and scientific argument. Two major training objectives are specified: training to meet the requirements of individual survival; and of societal recovery. It is recommended that training materials be stocked in public shelters to support these objectives. Post-attack situations will require that such materials be readily available and used in conjunction with on-the-spot training, and the creation and communication of specific recovery plans for local communities. It is also recommended that certain information basic to education of the public in emergency measures be prepared for timely use in mass communication media at such times as crises or disasters provide the essential motivation to learn. It is suggested that training is the responsibility mainly of local community political authority; the effectiveness of training will depend heavily upon the degree to which such leadership has the knowledge and resources necessary to conduct this function.		

KEY WORDS	LINK A		LINK B		LINK C	
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Postattack Recovery						
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