REORGANIZATION OF A CIVIL DEFENSE SYSTEM

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INTRODUCTION

This paper sets out a step-by-step procedure under which a typical civil defense system might be reorganized and decentralized to form a more community-based emergency response organization. This procedure is based on an analysis of changes in the organization and mission of civil defense agencies in large, industrialized countries where the trend has been to convert organizations set up for civil control following war to civilian agencies with a broader mandate: namely, assisting state and local governments to prepare for, and respond to, a wide range of natural and man-made hazards.

I. DEFINING THE CONCEPT OF CIVIL PROTECTION

The first and most important step for most agencies is to determine whether "civil defense" should remain a part of a defense ministry or be separated and re-formed as a civilian emergency preparedness and management agency. Ultimately, this decision will determine how the agency is configured, the role it will play in various types of emergencies, and the extent of its involvement in various phases of disasters and emergency operations.

Worldwide, the trend has been to separate civil emergency operations from military control and supervision. While the military establishment still plays a vital role, especially in such critical areas as emergency assessment, logistics, medical support, etc., these are functions which can be carried out more effectively if they are subordinated to civilian authority. In the western industrialized countries, the trend is to devolve emergency authority from the central government to states and local governments (or in Soviet terms, from the center to the republics). This approach permits much greater flexibility and places responsibility for immediate response at the scene. The role of national organizations is supportive, with national resources and assets brought in to supplement the local, on-site resources and personnel; national authorities take over only when there are gaps in the services which occur as a result of casualties or excessive damage.

While there may be some advantages to leaving civil defense in a ministry of defense, the advantages of being a civilian agency are far greater. Among the immediate benefits are:

1. Emergency management can be configured more readily to existing administration, thereby building on local capacities.

2. Emergency plans can be more closely tailored and configured to civilian needs.

3.   The workings of the preparedness agency are open to far more
     people and organizations.

4.   A larger number of international contacts are possible, thereby
     opening new areas for technical exchange, training and
     information sharing.

A.   Determining the Method of Operation

In general, there are three alternative roles for a national emergency
management agency:

1.   to take overall responsibility for the emergency from the center;

2.   to support on-site leaders; and

3.   to complement local community response capabilities by augmenting
     their resources as necessary.

In the first, the emergency management agency is required to have
several large mobile response teams fully equipped and able to respond
anywhere in the nation on short notice. This type of organization is
relatively large in size and requires a highly-centralized organizational
system. It must rely on sophisticated command and control systems and
must be able to mobilize hundreds of people and move them quickly in all
weather conditions to remote areas.

In practice, this model is very expensive and the performance of
agencies configured this way in all parts of the world is very poor,
especially in the immediate emergency period. Experience has shown that
no matter what state of readiness the agency has achieved, it is still
forty-eight to seventy-two hours before its personnel can be fully
deployed and operational.

Conversely, emergency organizations that are designed to support local
officials by responding to their needs and coordinating assistance from
outside the area are much smaller and can be easily decentralized.   As a
rule, they are much cheaper to operate.

One major drawback is that, if local leaders sustain high casualties
during the disaster, relief operations may be delayed and critical
functions may not be carried out swiftly and thoroughly. For this reason,
the third model has often been proposed.

An agency designed to complement or augment local officials requires a
slightly larger team but is still relatively small compared to the first
model. This type of organization can also be decentralized. It differs
from the second model in that small self-sufficient and highly-mobile
teams familiar with specific emergency needs or operations are formed for
deployment to the disaster area to provide essential services or operate

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critical facilities and systems in support, and under the authority, of state or municipal authorities. The teams usually consist of technicians, repair crews and emergency management advisers. This model is far less common that the first two but, in the countries where it is used, it has proven to be cost-effective and efficient.

B. Determining the Extent of the Agency's Involvement in Various Phases of an Emergency

Each disaster type, and the preparations for it, can be seen to progress through distinct, recognizable phases. Pre-disaster actions usually include disaster mitigation and emergency preparedness; post-emergency phases include emergency response, rehabilitation and reconstruction. As new concepts of civil defense are analyzed, the leadership must decide which phases of a disaster will be addressed by the organization and the extent of involvement in each. Most agencies have tended to focus only on preparedness and response, but most specialists today recommend that emergency agencies be involved in all phases. Disaster mitigation should be viewed as an opportunity to reduce the potential work load of the agency; both national and local authorities and economic planners should recognize that integrating civil defense measures into their planning process will not only save lives but, in many cases, will increase the scope and effectiveness of their planning efforts. Taking a limited view of emergency management ignores a useful asset and input into long-range development plans.

If broad-based disaster preparedness planning is undertaken, the advantages of working in all phases of disasters will soon become apparent. For example, disaster preparedness is not simply the stockpiling of goods and equipment for an emergency; the primary task is to move decision-making forward -- in other words, to examine what the emergency needs are likely to be and the decisions that need to be made. By analyzing them long before an emergency strikes, all the various options can be identified, reviewed and tested long before an emergency manager is required to confront the issue. In this process, the sequential nature of decision-making will also become apparent and as the agency reviews its preparedness measures, it will soon identify many areas where mitigation measures greatly reduce both the scope of disasters and emergency response requirements. In broad-based preparedness planning, it will soon become apparent that it is almost impossible to take any decision out of a context which includes the entire spectrum of disasters.

Finally, if the organization takes a broad, all-phase approach, the development of emergency response doctrines and training for decision-making will be facilitated.

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II. ASSESSING OF REQUIREMENTS

The next step most governments take in reorganizing civil defense is to conduct a hard evaluation of past performance and identify the real needs and requirements of communities threatened under various disaster scenarios. This evaluation must be thorough and critical. The entire success of the reorganization will be based on these studies.

Performance must be analyzed with an extremely critical eye. In particular, the performance of the organization and of state and local officials must be scrutinized. At the same time, the needs and requirements of both survivors and institutions must be identified. It is important that real needs be separated from perceived needs; much of what passes for disaster relief today is not only unnecessary but often counterproductive.

At this stage it is also important to analyze how people on the scene respond to various emergencies. Many of the standard assumptions about the behavior of people have proven to be incorrect. Many of the traditional relief measures employed fail to utilize and build upon the collective response and convergence of people at the scene and, in many cases, have created relief systems that confuse and delay emergency operations. Disaster response should be based on supporting the popular, mass responses. This is done by enhancing local capabilities and helping the survivors and others in the affected zones to cope with emergency needs themselves as the first step in the overall response.

Perhaps one of the best examples is in the case of search and rescue. In the immediate aftermath of an earthquake, thousands of people are rescued by friends, relatives or other survivors and by people converging on the site within the first 24 hours. In contrast, specialized rescue teams usually arrive the second day, or later, and only extract a few dozen (or less). The implication is clear: if survivors can be provided with simple tools and equipment -- such as hammers, crowbars, ropes and tackle, flashlights and other hand tools -- hundreds more lives can possibly be saved. Conversely, if resources are channeled into small, highly-specialized rescue teams that must be flown in from outside the area, the number of lives saved is likely to remain low.

In carrying out an assessment of past performance, it is important to evaluate performance according to various sectors. This is because responsibilities ultimately will be borne by sectoral, or line, ministries. For example, medical and public health activities are the responsibility of public health officials. Housing and shelter are likely to fall under a housing ministry (or a State Committee for Construction).

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Among the more important sectors are:

1. medical and public health;

2. housing and shelter;

3. agriculture;

4. economic enterprise (divided into small, medium and large-scale enterprises and industrial facilities);

5. lifelines and infrastructure (e.g., water, sewage, electricity, etc.);

6. critical governmental facilities;

7. personal needs of survivors; and

8. emergency operations (search and rescue, communications, logistics, etc.).

It is important that every aspect of past emergency responses be closely analyzed to determine what went right, as well as what went wrong. Wherever possible, the decisions that were made should be identified and the officials that made the decisions should be queried about the assumptions on which the decision was based.

Finally, foreign aid received should also be closely examined. Unfortunately, many countries have witnessed the mass arrival of much useless, unsorted and counterproductive aid. Many relief teams arrive too late to be of any consequence. Most are configured improperly for their role (especially in winter earthquakes). Few have the proper resources or transportation necessary to carry out their mission effectively and the majority of the tons of supplies that are sent are of little practical value to disaster victims. Foreign contributions can be of value, but only if they are properly controlled and if emergency management officials have predetermined the useful services and goods and developed specifications that can be transmitted to potential donors. A close examination of the assistance received can yield information upon which guidelines for donors can be prepared: this will facilitate the coordination and distribution of international aid.

III. DEVELOPING DOCTRINES

The development of emergency management doctrines is the principal outcome of an evaluation of past performance. Doctrines embody, and are an extension of, the process of setting policies.

Most important, doctrines shape the various responses and provide a basis for planning. They define the objectives, the policies and the operational approaches for the critical segments of emergency operations.

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To be effective doctrines must consider:

A. The climate and the range of weather conditions likely to be
    encountered:

    For example, doctrines for response to a winter earthquake are much
different from those needed for responding to a summer earthquake. In a
winter earthquake some elements of the population may need to be
evacuated, while in the summer survivors may remain close by. If a
doctrine mandates evacuation, logistics and shelter needs will be greatly
different from a situation where the majority of people remain on site.

B. Long-term objectives:

    The process of establishing doctrines permits planners to examine the
relationship between immediate responses and long-term reconstruction
objectives. For example, in rural areas, where reconstruction of
single-family dwellings will be more prevalent than in urban areas,
emergency shelter strategies can be adjusted so that building materials
(which can be used for emergency shelters, then later to rebuild permanent
housing) can be provided rather than tents. By establishing a
shelter-to-housing response doctrine, economies of scale and effort can be
made.

C. The interrelationship of various emergency actions:

    For example, doctrines regarding evacuation will determine what types
of emergency shelter responses are required. If the doctrine calls for
minimal evacuation, attention must be placed on providing emergency
shelter to the victims on-site. Conversely, if the doctrine calls for
evacuation on a large scale, the means for rapidly identifying long-term,
off-site lodging must be developed along with transportation, systems to
record and trace those who have been temporarily relocated, and systems to
provide evacuees support while they are in their temporary setting.

D. The scale of the disaster:

    Doctrines must define the potential scale and the types of resources
that will be committed by each level of government. (These become the
basis for preparing enabling legislation.)

    At a minimum, doctrines should be developed for:

    1. search and rescue;

    2. evacuation and provision of emergency shelter;

    3. utilization of foreign resources;

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4.   triage and first aid procedures;

5.   comprehensive medical assistance (from rescue through post-operative care);

6.   tracing and family reunification;

7.   operation of municipal systems (especially lifelines);

8.   security operations and the use of military resources;

9.   public assistance (food, blankets, etc.); and

10.   coordination and communications;

IV. DETERMINING STRATEGIES AND APPROACHES

The next step usually taken is the development of strategies and approaches. This process too is based on the detailed assessment of performance and needs. Strategies describe the overall plan and how to tackle specific problems; they should define which organizations and resources are to be committed and how, when and where. The approaches define the methods to be used, the quantities of personnel, equipment or goods that will be provided under different scenarios and the programs that will be set up to administer relief and other assistance.

The question of how many supplies or other resources should be deployed in a specific emergency is always a major concern. There is a need to respond rapidly without under- or over-supplying. One of the ways some disaster preparedness organizations meet this dilemma is to plan a system according to "blocks" of population. In this method, ratios of needs to specified numbers of families under different disaster scenarios are established and in an emergency, supplies are committed on the basis of these ratios. For example, disasters may be classified as small, medium and large-scale. In a small-scale disaster, blocks of fifty families might be chosen as the basic planning unit; in a medium-scale disaster, five-hundred families; and in a large-scale disaster, five thousand. If a small disaster were to occur -- for example, a chemical leak -- prepackaged supplies and equipment based on the estimated needs of fifty families could be supplied incrementally. If the disaster were larger -- for example a flood -- supplies could be provided in increments for the needs of a population of five hundred. By using this method, it is possible to develop a modular system for supplying most relief needs. There would be some over-supply but the approach permits relief authorities to commit resources immediately without risk of major over-commitment or of failing to supply enough resources in the immediate aftermath.

Selection of one strategy or approach should not preclude the adoption of others if the agency's resources allow. It is especially important that approaches be balanced and complementary.

V. PREPARING OF PLANS

At this point, it is possible to begin the preparation of detailed plans, shaped according to the doctrines and the strategies and approaches chosen earlier. Plans are needed for each type of natural hazard or threat and should provide guidance for both pre-disaster and post-disaster actions.

The types of plans that are needed are:

A. Mitigation Plans

Plans to mitigate disasters are the most important element of pre-disaster planning. The primary role of emergency management agencies should be to work with other ministries to integrate disaster mitigation planning into normal economic and urban development plans. For example, cities should be planned in such a way that buildings are properly spaced so that, if they collapse, they will not damage surrounding structures; roads should be sufficiently wide that emergency vehicles can gain access in the immediate aftermath of a disaster; and safe areas and potential refuges should be planned as a part of all large communities.

B. Preparedness Plans

Preparedness plans serve two purposes: first, they define the resources that are to be committed during an emergency and the methods for their employment. Second and more important, in preparing the plans emergency management specialists have an opportunity to review the options for each emergency action and provide guidance to leaders on the proper decisions to make in various situations they are likely to face.

Preparedness plans should address the following:

1. warning;

2. evacuation;

3. temporary shelter; and

4. support.

C.   Emergency Response Plans

Emergency response plans should generally be set out in the sequence that actions will be taken in the aftermath of a disaster. Plans should include, but not necessarily be limited to:

1.   damage and needs assessment;

2.   casualty evacuation;

3.   medical and public health needs;

4.   evacuation and shelter;

5.   public assistance (food, water and personal supplies);

6.   tracing and family reunification;

7.   disposal of the dead; and

8.   control of secondary threats.

The development of plans should be in accordance with the doctrines and strategies elaborated earlier. As each response is developed it is important to define coordination and communications requirements. Resources to be employed should be integrated sequentially, according to when they are likely to become available.

The major problem with many plans is that they are unrealistic about when resources can actually be committed. As a general rule, planners should only plan to use resources already in the community during the first 12-24 hours. Resources stationed nearby could reach the site within a 12-48 hour period; national resources after approximately 36 hours; and international resources within a 48-72 hour period.

It is important to emphasize that plans should be designed to support popular responses, especially in the areas of search and rescue and shelter. Priorities should be given to those actions that save the most lives.

D.   Transition Plans

One of the requirements most often overlooked in emergency planning is the development of guidelines to help officials transition from emergency to longer-term rehabilitation and reconstruction activities. It is important to define when emergency operations should be terminated or scaled back. Transition plans should identify what resources should be left in the community, what types of supplies to provide, and what changes in organizational structure are necessary to facilitate longer-term actions.

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VI. DESIGNING THE EMERGENCY RESPONSE ORGANIZATION

Once the plans have been developed, the process of structuring the emergency organization begins. No one organizational structure can meet all emergency requirements; different emergencies require different configurations and different scales of organization. As a general rule, it has been observed that "pyramidal" organizational structures have proven to be far less effective than "matrix"-style organizations. Pyramidal organizations promote compartmentalization and concentrate too much authority at the headquarters rather than in the field, thereby increasing the number of decisions made by leaders outside the community and impeding the flow of information up and down the chain of command.

If a pyramidal organization is required, some of its shortcomings can be overcome through the use of task forces and the deployment of small, semi-autonomous technical and operational teams.

Whatever type of organizational structure is chosen, it is very important to remember that it should be kept as simple as possible and it should permit small unit leaders to operate independently.

VII. LEGISLATION

Once emergency plans are complete, it may be necessary to revise the legislation that provides emergency managers and the agency the authority to perform their tasks. Legislation that activates emergency powers and provides extraordinary authority to officials is known as "enabling" legislation.

Enabling legislation should:

-- define the conditions under which civil defense rules will go into effect;

-- define who in the government may declare that the rules are activated (i.e., declarations of emergency);

-- define what resources may be utilized without prior approval to meet emergency needs; and

-- define what changes in governmental structures are required in order to successfully manage an emergency (for example, certain departments may become subordinate to emergency management authorities under a declaration of emergency).

Most countries develop legislation for three levels of government: national, state and municipal. Since, in a decentralized system the prime responsibility for emergency response rests with local communities, the process of developing legislation usually begins at the level of municipalities, then for states and finally for the national system, incorporating the plans of the state and local systems.

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VIII. TRAINING

One of the most important elements of disaster preparedness is training. Training has two purposes: improvement of the skills of the emergency team and verification of plans. Of the two, the latter is more important. Training exercises, drills, simulations, etc., can point to major weaknesses in the conceptualization of plans and indicate problem areas, potential bottlenecks or operational constraints. For this reason, training should be viewed as a continuing part of the emergency planning process. Anytime a plan is changed, drills or exercises should be carried out to verify that the new procedures, equipment, etc., perform as planned.

Training should be based on the various scenarios that are anticipated. Realistic simulations and exercises can be designed to give participants a realistic feel for the conditions they are likely to encounter and to familiarize them with the tasks that they must carry out.

In designing training programs, it should be remembered that the most important thing to test is the capability of team leaders to make the best decisions under the circumstances. Emergency decision-making (EDM) is an emerging science that can be applied during training. EDM utilizes two approaches: analysis of "decision chains", i.e., the cause-and-effect relationship of decisions and how one decision sets the stage for subsequent decisions; and "situational awareness", i.e., identification of typical situations that occur after emergencies and the points at which decisions must be made in order to influence the outcome of events.

EDM stresses:

-- the sequential nature of decisions; and

-- how to identify and correct bad decisions.

A major point of disagreement among western civil defense experts concerns the scope of training and who should receive training. Most agree that key staff, municipal leaders and specialized teams can never receive too much training, but there is considerable disagreement about whether training for volunteers, volunteer brigades, etc., is cost-effective. In one country, over one hundred thousand volunteers receive annual emergency management training at a cost of over fifty million dollars. Yet studies have shown that less than one percent of those volunteers have been called into action in the last decade. Even when they are called up, many arrive at the scene long after the need for their skills has passed.

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This low use rate has led several emergency management specialists to propose that training be re-directed and emphasis given to providing post-emergency training on site. For example, instead of organizing and training standby search and rescue teams, it is proposed that methods be developed to rapidly disseminate information to the spontaneous search and rescue groups that converge on disaster sites to teach them, on the spot, where to look for survivors, how to pinpoint them and how to make simple rescues. In this approach, emphasis is placed on training trainers and developing a vast array of self-teaching methods, media and means for rapidly deploying both trainers and instructional materials.

Proponents of this approach argue that it is much more cost effective and will yield better results because it builds on popular responses to an emergency.

IX. PUBLIC AWARENESS

A major function of an emergency management agency is the creation of general public awareness about hazards, what to do should an emergency strike, and what behavior is expected of people in the aftermath. The public should be made aware of where to go for assistance, the role each agency will have in providing specific services, and how aid will be organized and distributed.

Public awareness plans should not be too grandiose nor should messages be too alarmist. Emergency managers should decide on three or four principal messages that the public should remember and focus on these. Elaborate public service messages that require memory of, and discrimination between, multiple items have not proven successful. For example, in the United States few people remember what the different number of blasts on warning sirens or horns indicate; few can distinguish between a tornado warning and an alert for nuclear attack. Even the wording of messages must be closely analyzed. Recent studies have shown that few people in the United States can differentiate between severe storm watches and severe storm warnings.

Nonetheless, public awareness is a major task of emergency management agencies and should be seen not only as a means of disseminating information but also as a means of gaining public support for emergency preparedness and disaster mitigation efforts. A well-planned public awareness effort can build a strong constituency for the agency and will help ensure that disaster plans are prepared and followed by community leaders.

X.   EVALUATION

Evaluation is the final element of emergency preparedness planning and, in many ways, is the most important action taken after the plans are established.   Evaluation must be a continuing process. Training programs can be used to assess plans prior to an emergency but detailed evaluations must be carried out in the aftermath of disasters.   It is crucial that every element of the disaster plan and the actual emergency response be closely examined so that improvements can be made in future plans.

When evaluating plans, it is important to evaluate them according to the objectives set out during the planning process.   Were the objectives reached and, if not, what revisions are necessary?

Evaluation can be carried out in several ways.   Self-evaluations conducted by staff deployed during the emergency, if properly structured, can be a most effective means of determining what went right and what went wrong.

To assist in the evaluation process, it is important to establish a permanent evaluation office under the leadership of an Inspector General. The purpose of this office is to provide assistance to state and local staff to help them plan and carry out self-evaluations.   The office also conducts research and investigations on the overall emergency response. The IG staff should see themselves in the role of "devil's advocates", i.e., they should approach every operation with a critical eye and dig deep to identify areas that need improvement.   The IG staff should begin with an assumption that nothing worked correctly until proven otherwise. Only by taking a hard look at all phases of emergency response can the overall emergency system be improved.

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