

RESCUE AND EVACUATION TECHNIQUES AND MANAGEMENT

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Any civil defence program is inevitably based on assumptions about the probability and the likely character of a future threat about the ways in which it might be initiated and conducted, and about the contribution that civil defence can make, among other things, to the country's defence and deterrence posture and to its recovery from an attack. Under the conditions of contemporary warfare or disaster no civil defence system could provide reliable protection for all citizens under all conceivable circumstances. Furthermore both budgetary and technical limitations would probably rule out any attempt to design a system able to deal effectively with every threat and situation. On the other hand, a civil defence program has to be adequate for at least certain situations which constitute civil defence strategy.

The strategy of civil defence in any integrated emergency management system is based on the recognition that there are common elements that form the foundation for responding to any emergency. In addition, the increasing capabilities in these areas improve the ability to deal with any type of emergency. Among those basic elements :

A. RESCUE**1. Rescue Service**

The art of rescue is to save the maximum number of lives in the shortest possible time.

1.1 The need for Mobile Rescue Teams

Mobile rescue teams, equipped and trained to remove persons from damaged buildings, will form an important part of Civil Defence Program. These teams, having a suitable vehicle and the equipment to effectively penetrate debris, will save many lives if the country is ever subjected to air attack or any type of disaster. Without an adequately organized and trained rescue service in wartime or when the disaster strikes, many needless deaths would occur; and industry, as the most likely target for attack, would probably suffer most. As many rescue squads as possible should be organized now, with whatever suitable personnel and equipment that are available.

Formation of a group of trained persons into a mobile rescue team would ensure a ready rescue service. Furthermore, if plants enrol their mobile rescue teams in the local Civil Defence Organization, then the local Civil Defence will be able to furnish adequate rescue service to any stricken plant or area in the community. Such a mobile rescue team would, of course, be primarily concerned with disaster relief on its own area, but it would also be prepared to respond to disaster relief as a part of the local Civil Defence organization anywhere in the locality.

2. Personnel

Where several rescue teams are to be organized, it will be necessary to designate one person as director of the rescue service. Where only one team can be organized, its leader may assume the duties of a director. In either case, the director or leader should be a man experienced in building maintenance or construction, and capable of recruiting, organizing, and training the team members. Wherever possible, a variety of skills should be represented on each team. Team members should have a background of experience in general contracting, military construction, factory maintenance, or common building trades, such as building wrecker, rigger, carpenter, bricklayer, structural.

2.1 Enrolment of rescue teams

As soon as teams are formed, they may be enrolled with the Civil Defence corps. Each member of the team will be required to file a loyalty oath and will be issued a Civil Defence worker's identification card bearing his photo and thumb print. It is therefore proposed that localities anywhere should organize rescue teams for protection of their own personnel and facilities, and enrol their mobile rescue teams as Civil Defence rescue units for mutual protection of the locality at large or industry.

Ordinarily, team members should not be recruited from production workers who would be needed to keep the plant in operation. Exceptions, however, should be made where special skills would contribute extraordinary services to the rescue operations. Key personnel who could better serve the cause of Civil Defence in the normal occupations should not be recruited. Age too is a consideration in enrolling rescue workers. Men of advanced age would not have the physical stamina for the work, and very young men are likely to be called for military service.

Rescue teams usually consisting of 8 or 10 members, including a leader and driver, should be organized into a team and, if possible, three teams should be organized for each vehicle designated. Where round-the-clock shifts are the practice, one team should be formed on each shift for each vehicle assigned. This would ensure prompt response at all times; having more than one team per vehicle permits working the team in shifts in case of prolonged tours of duty. While eight-man teams are recommended, it would probably be better to assign extra men to a team in order to ensure that a full complement will be available when needed. A suggested table of organization for one team follows. Nearly any combination of the trades mentioned will form an effective team; however, formation of a team should not be restricted to these trades only as other allied tradesmen have skills valuable to a rescue team.

2.2 Liability and compensation

Civil Defence authorities should give high consideration to all matters of liability and compensation for injury or death to employees participating in rescue operations. Employees participating in rescue service operations should be compensated as employees of the government; but employees acting as Civil Defence volunteers elsewhere are not currently protected by liability or compensation legislation. However, the legislation contemplates insuring compensation to Civil Defence volunteers for injuries or death.

3. Organizing rescue teams

Organization of Civil Defence recommends that a rescue section be organized to perform this service in the locality. These establishment rescue teams will be effective for only light damage, but if major damage is suffered, they must be supplemented by mobile rescue teams from undamaged areas.

If a competent rescue service is to be organized in a city to provide a reasonable degree of protection during emergency, the following principles of organization will materially hasten its development :

- a. Team members should be recruited as groups accustomed to working together than as individual.
- b. They should be persons adaptable to the assignment by reason of their trade or special skill in order to obviate necessity for prolonged training.
- c. Members of any one team should be employees working at the same location on identical shifts to facilitate organizing, training, and mobilizing.
- d. Teams should be organized where the vehicle and equipment are readily available for instant service.

Industrial establishments are best suited to meet the foregoing requirements for mobile rescue service organization. While other groups might meet some of the requirements, most groups would lack desirable features, such as having all members of the teams normally working on the same premises.

3.1 Table of organization for one rescue team

- 1 leader—construction or maintenance supervisor
- 1 assistant leader—construction or maintenance supervisor
- 1 millwright, welder, or machine repairman
- 2 riggers, iron workers, or carpenters
- 1 electrician, plumber, or steam-fitter
- 1 mechanic, equipment operator or machinist
- 1 truck driver

3.2 Organization and chain of command

The rescue section in Civil Defence organization will be composed of all the rescue teams the city is able to organize with its employees and equipment. Augmenting this service will be rescue teams organized and equipped from volunteer sources, including those organized in industry and enrolled as part of the whole Civil Defence organization in the area. Command of the Rescue Section will be vested in a Director of the Rescue Section appointed by the Civil Defence Director of the area. Industrial rescue teams operating in the field will be under the direction of the Director, but will be commanded by their own leaders.

4. Training

Training required for team members will be minimized if experienced workers are selected. However, specialized rescue training is contemplated on a national level at special schools being organized for this purpose. Key personnel, or others selected as instructors, should take this training as it becomes available, and should supervise the training of team members.

These teams will be the first to reach injured persons, therefore it is considered essential that all members be given first aid training. This may be arranged through group training by a Civil Defence first-aid instructor, establishment personnel who have undergone instructor-training in first-aid may train the team members on the premises. As soon as a team is organized, the members should be given a first aid training course. Other training programmes will be announced as they are instituted.

5. Equipment

The vehicle for carrying a squad may be any type of truck, preferably covered, which can take the equipment and the eight-man crew. The vehicle should be readily available or else several suitable vehicles could be designated, and the one most readily available pressed into service when needed. The vehicle selected may be designated as "... Company Rescue Squad" with suitable insignia; or an insignia that can be readily installed may be adopted for placing on any vehicle detailed for duty. It is preferable that vehicles bear the insignia only during practice exercises, or when actually used for rescue.

The tools and equipment recommended by ICDO are considered essential for equipping a rescue vehicle for minimum operations of a rescue Squad. If additional items are desired for more extensive operations, these may be selected from the table of equipment indicated for a standard rescue.

6. Rescue operations

The objective of operations will be to "ensure essential conditions for the restoration of production activities of the facilities of national economy".

Rescue and repair operations will be carried out simultaneously and as soon as possible after the attack. Specifically, Civil Defence rescue operations will seek to locate, assist and evacuate casualties and people in shelters buried under debris, and remove and evacuate people from shelters threatened by fire, flooding, gas or toxic chemicals. Emergency repair and restoration operations cover a wide range of activities such as : radiological, chemical and bacteriological monitoring and reconnaissance; opening of routes to areas where rescue and repair activities are to be undertaken; protection of the rescue and repair Civil Defence forces, and the limitation of damage through fire-fighting, dealing with buildings threatening to collapse; prevention of flooding from damaged water, sewage and steam mains; prevention of poisoning and of secondary fires and explosions from damaged gas, fuel and chemical conduits and storage facilities, and from broken electric power lines; restoration of electric power, and especially of water supply, to facilitate fire-fighting and rescue operations; and decontamination.

In peacetime, Civil Defence rescue and repair units will also be used to deal with the effects of natural disasters. The rescue, damage-limiting, repair and restoration operations will be similar to those in war.

7. Rescue and Medical Assistance

Civil defence planners and medical authorities realize that the large number of casualties is likely to overtax the medical facilities and the reserves of professional medical help. Their principle, therefore, is

to have relatively unskilled persons administer first aid to those suffering from burns, broken bones, bleeding wounds, electric shock concussion, and other lesser injuries, and to subject the injured to repeated screening (triage) as they pass through the various medical facilities.

The disaster area is to be divided into a number of sectors, each headed by a senior medical chief who will coordinate the operations of search and first-aid teams, as well as those of the mobile and stationary medical units. The forces of a city's proper will consist largely of stretcher-bearers and first-aid personnel, who will give first aid to the injured and evacuate them; the professional medical units, stationed outside the disaster area, will give more thorough treatment to the rescued casualties. These units and their facilities will be organized in depth, so that as the injured pass through additional screenings farther from the disaster area, the treatments and services available to them will become increasingly elaborate.

The current training of the population in first aid, the large membership of the Red Cross Society, and the existence of numerous first-aid and stretcher-bearer units add up to a substantial capability for providing prompt assistance in the event of an attack to a great many of those who may suffer relatively minor injuries and can survive for some time without complex medical treatment.

B. EVACUATION TACTICS

1. Definition and General Concepts

An evacuation is a movement of people to protect lives and prevent injury in threat, or risk situation, the intention is to either prevent entirely any exposure to danger, if there is sufficient time for warning or to reduce the consequence of danger. There are three strategies for coping with the threat of natural disasters : 1) Control of the threatening event itself; 2) Control of human settlement patterns; or 3) Development of forecasting techniques and warning systems that generate a protective response by those threatened. This report concerns the issues related to the third alternative which means protective action, namely, evacuation, tactics. The practice of evacuating people threatened by disaster has a very long history. As early as the fifth century, B.C., the Greek historian Herodotus described the annual evacuations undertaken by Egyptians to cope with seasonal flooding of the Nile River.

However, social scientists have devoted little effort to specifying the features - both social organizational and social psychological - of evacuation and to classifying its different uses. This has contributed to considerable confusion in discussions of evacuation among laymen as well as professionals. A review of the disaster literature suggests that two factors have a major impact on the nature and conduct of evacuation as well as the way the public reacts to it. These factors are the timing of evacuation relative to disaster impact and the amount of time it is expected that evacuees will spend away from their home. Whether or not mobilization for evacuation is instituted prior to or following the impact of a natural disaster depends to a large degree on whether the threat is

detected in time to disseminate a warning. This dimension is of course correlated with the type of hazard involved and with the society's level of technological sophistication, which controls hazard detection and prediction.

By cross-classifying these two important dimensions of evacuations, one may generate a tentative, protective, rescue, and reconstructive plan. Each of these types may result from a different protective strategy, creating different demands on the emergency social system, and producing different consequences for individuals, organizations, and communities.

- Preventive evacuation refers to short-term, preimpact evacuations designed to minimize losses of life and property by cleaning an area before disaster strikes.
- Protective evacuations is also a process that occurs prior to impact but is distinguished by the fact that evacuees must remain clear of the area for longer periods of time. Civil defence planners have devoted considerable attention to protective evacuation.
- Rescue evacuations involve recovery operations concentrated on short-term removal of victims after the impact of a disaster agent. It should be noted there that rescue evacuations conceptually do not include operations for the recovery of bodies. The purpose of rescue evacuation is the removal, after disaster impact, of injured or uninjured persons to a place of relative safety.
- Reconstructive evacuation involves postimpact removal of victims for a long period of time to permit rehabilitation and reconstruction of an area that has become largely uninhabitable due to the impact of some hazard agent.

2. Planning (Tactical Evacuation)

The evacuation of any region is an administrative measure that can be put into effect in four different situations :

- As a civil defence measure in the event of wars;
- In the event of natural disasters such as floods, fires, etc.;
- If there is any risk of nuclear disaster, i.e., any malfunction of the reactor;
- In response to criminal disobedience, terrorist actions, bomb threats, house-occupations, etc.

The four types of emergency situations differ in the extent of readiness and degree of mobilization of the affected public service units, the preparations made, the motivation and attitude of the people affected by evacuation, the manifestation of the threat, and the possibilities for individual citizens to observe and determine the nature of the threat and the risks involved. The evacuation of large areas and large numbers of people prior to a feared nuclear disaster - or after the occurrence of an actual disaster - is a very complicated affair. A high degree of knowledge of society is necessary in order to plan evacuation measures properly. This knowledge is the basis of all planning and includes an inventory, description, and analysis of the following :

- Population
- Living conditions
- Human behavior under threatening situations

- Geography
- Production processes
- Roads and communications
- Possible occurrences that may lead to disruption and injury
- The degree of protection desired
- Protection alternatives
- Evacuation dynamics

Physical removal, one of several alternatives, may at times become the only alternative. It is a far-reaching, hard to manage, and blunt instrument that, depending upon the situation, may encompass many shortcomings and risks. Some countries are not usually subject to large natural disasters such as earthquakes or floods. In addition, few people have experienced the effects of modern warfare. The unfortunate result of these fortunate circumstances is that only a very limited first-hand knowledge is available of any large-scale, rapid evacuations.

The different stages of an evacuation operation are :

- Analysis of situation
- Warning and preliminary preparations
- Evacuation
- Surveillance and search
- Follow-up

If carried out in time, evacuation can prevent lethal radioactive doses in a threatening situation; even if evacuation takes place after radioactive emission has occurred, the danger of exposure can still be significantly reduced.

If land areas affected by radiation are expected to emit unacceptably high annual doses, a permanent removal may be necessary. However, this need not be carried out in a hurry and can take up to a week, allowing the removal of most personal possessions. Very large disasters call for a rapid evacuation of the affected area. The removal of population from the inner preparatory zone can be planned in advance so that the entire operation can be carried out in the shortest time.

3. Implementation

Of fundamental importance for evacuation planning and implementation is the fact that people behave differently and make different demands in an emergency situation. The planning and implementation of an evacuation must therefore be based upon an assessment of the manner in which a population can be expected to comprehend and obey a decision to evacuate people affected and the rescue organizations should be established in the immediate vicinity of an evacuation area. Properly maintained channels of information between the various authorities involved in evacuation operations is important for the effective coordination of assistance.

The transport necessary for evacuation is expected to consist primarily of the private motor vehicles of the persons evacuating; public transport vehicles may be used as a secondary source. An attempt should be made to register all those who have evacuated an area or, failing that, at least all who have been evacuated by means of public transport or who in any

other way require public assistance. Such registration must be carried out in a way that does not hinder or delay clearance of the evacuation zone.

In the first stage of evacuation, a large part of the people evacuated ought to be able to find their own lodgings, usually with relations or friends - an arrangement most people prefer when the alternative is some form of public provision. This will probably prove to be inconvenient after a few days, with the result that a greater demand for publicly supplied accommodations should be expected after the initial phase. The public provision of temporary housing for evacuated persons should be carried out in places so situated that little risk is involved for future moves if the danger zone is extended.

An evacuation process should be adaptable to the current situation. The plan of evacuation should be designed to ensure sufficient flexibility and the fulfillment of operative requirements. The plan should permit an evacuation in stages and by sector, and should state measures to be taken on occasions of spontaneous evacuation during radioactive emission. The compilation of information and preparation of an evacuation plan should take place in cooperation with the evacuation commander, the relocation commander, and the police forces affected by evacuation, as well as the other services involved.

3.1 Evacuation Stations

Beyond the risk zone - and for nuclear power plants, beyond the inner preparatory zone - one or more evacuation stations shall be set up. These should be located on the more important highways, have sufficient parking space and suitable quarters, and be situated in such a way as to benefit from prevailing winds. An evacuation station should coordinate and assist the evacuation of the particular area under its responsibility. It is the exchange point for transport vehicles assigned to the rescue organization, the place where checks of personal and vehicle exposure to radiation can be made, and the place where registration is carried out.

The head of an evacuation station is a police officer, and it is his responsibility, immediately after receiving his orders, to set up an evacuation station according to plan, organize his staff, put up all necessary guideposts and roadsigns to point out the evacuation station, assign tasks, submit periodical reports on the current situation, assist the evacuation and field commanders in the supervision of the service personnel's possible exposure to radiation, organize decontamination treatment of the rescue personnel if required, direct the evacuated population to relocation stations in accordance with instructions, organize and supervise loading of persons evacuated by means of public transport, receive and assign motor vehicles for transport within a designated area of responsibility as well as from the evacuation station to the relocation stations, issue transport schedules and maintain transport distribution charts, designate routes to follow for evacuation in private transport, and ensure that everyone who has requested transport is located and brought in.

3.2 Registration

The police are assigned several principal tasks of general rescue services. Among these are the responsibility of identifying and recording all dead or injured persons, including a register of uninjured, affected persons. This is a normal part of police duties. It is not difficult to list the reasons for compiling as complete a register as possible of the people who are in some way affected by a disaster.

Records :

- Are an aid in assigning priority in the allocation of resources and actions to be taken.
- Permit an operative follow-up of actions taken.
- Provide information for relatives and other concerned parties.
- Identify those directly affected.
- Identify those in need of decontamination and first-aid treatment.
- Provide a basis for the determination of possible compensation.
- Indicate the need of services required.
- Indicate the need of special information.
- Maintain continuity of population registers.
- Provide a means of evaluating the course of a disaster and the rescue operations carried out.
- List the persons who have returned to an evacuated area.

The police data bank with terminals at the main stations can significantly increase registration efficiency. This data system contains pre-programmed disaster evacuation registration forms; evacuation documentation and search documentation.

The bulk of registration must take place in the field. It should be done in a location at a reasonable distance from the area to be evacuated, safe from any contamination that might result from a change in wind direction. Registration may take place at the point of damage, collection points, loading points, pick-up points, road checkpoints, evacuation stations, specially set up registration points, temporary quarters, or information and registration centers that receive information from outside the evacuation zone. By providing information and responding to inquiries, families can be rapidly reunited, thus reducing the risk that people will return to the danger area to search for relatives.

4. Human Behavior

Among the misconceptions connected with the occurrence of disasters and similar emergency situations is the belief that people will lose control of themselves, becoming afflicted by a condition known as "escape panic" in which they are unable to take care of themselves. Panic and irrational behavior are far more uncommon in emergency situations than people generally imagine. Most people do not panic, and it seldom occurs that people flee in a mad rush from a disaster scene. Even in cases where panic does occur, it is usually just a few people who are afflicted.

In many cases this faulty belief in a general tendency of the public to panic - especially when held by responsible public authorities and large organizations - can lead to serious problems. These authorities tend to plan their courses of action in the wrong way, as if panic were the major

problem in a disaster situation. In fact, it is often very difficult to persuade people that a dangerous situation has arisen and that they should take steps to protect themselves. It is not easy to induce the proper behavior. People are unwilling to place themselves in safety merely on the chance that a disaster may occur, to seek out fallout shelters or even to shut up their windows and doors on the basis of some threat.

Panic has been reported only in situations where there were very special conditions. The most common feature of a panic situation is that people believe they must hurry, and at the same time, perceive that their movements will be hindered by others attempting to do the same thing. It would, however, be a mistake to ignore the risk of panic entirely. If for some reason people are led to believe that they must leave the area quickly, and that not all can expect to escape in time on narrow, crowded roads, an unpleasant situation may arise. The result could be chaotic traffic conditions, rivalry, blocked roads, and conflict between individuals and groups anxious to get away first.

It is apparent that the more people who hurry to leave a threatened area, the greater the risk that panic will occur. For this reason, overdimensioned evacuation roads are the best way of preventing panic. People who expect a panic situation will then see that no crowding occurs and that everyone will have the opportunity of getting away. People can be expected to adjust their behavior in accordance with what they can see for themselves, and they should be able to behave in a relatively rational fashion if there is no perceived threat. Most mass panics have been reported from fires where large numbers of people are collected, or from battlefields. The probability of panic arising outdoors is very small, but can occur in places where traffic is hindered by some bottleneck. An example of a bottleneck is the case where several routes lead to a single bridge that everyone must cross. A large population within a restricted area also increases the risk of panic if everyone is forced into a few restricted evacuation routes.

There will always be some people who frighten easily and flee blindly, but they are too few to be a serious problem. The difficulties begin when we are faced with contagious panic, where people by their behavior provoke one another into trampling each other in a blind rush to escape. Fortunately, contagious panic happens but rarely. Even if an extensive evacuation (including panic) takes place, we can expect that some people will behave in a manner exactly opposite to what the bulk of the population involved will do. At the same time that most people are attempting to leave a threatened area, others will try to enter, trying to return to their homes to see what has become of their families. They will not be affected by the behavior of the fleeing masses; instead, they will pursue a personal goal - the rescue of their families. In other cases, people will return to threatened areas to try to save their property.

People afflicted by a catastrophe are goal-oriented and attempt to behave rationally. Their goals, however, can be entirely different from those of the responsible authorities. The latter are striving to remove as many people as possible, as quickly as possible, from a threatened area,

while many of the people involved are prepared to accept great risks in order to search for missing relatives. However the fact that people in a catastrophic situation behave relatively rationally is no guarantee that they will act in the most efficient manner. Most people lack experience in the sort of situation a catastrophe implies, and usually they are in far too great a hurry to have any time for reflection.

C. MANAGEMENT AND CONTROL

Effective conduct of survival operations during and after disaster, particularly in conditions of heavy loss of life, severe devastation and disrupted communications, requires preparation to control and direct operations to save life and facilitate recovery. Collection and collation of essential information during an emergency period, its evaluation is a main factor for decision making.

1. Essential information relating to Civil Defence emergency

The Civil Defence essential records should include the following types of information relating to a Civil Defence emergency :

- a. Emergency board and auxiliary personnel - names, addresses, telephone numbers, disaster responsibilities, skills, availability of transportation, etc.
- b. Potential emergency sources of water-location, capacity, probable potability and safety, need for treatment and pumping, reliability of continued operation during emergencies, estimates of equipment and supplies likely to be needed in their use, for tapping means, for locating persons responsible for these sources, and signed agreement by owner for public use of supply in emergency.
- c. Amounts, types and locations of emergency stockpiled equipment, materials, supplies, and chemicals (including repair items), both belonging to the utility and that available in the area.

2. Factors to be considered

- a) Appointment of controller and deputy
- b) Appointment of emergency committee
- c) Preparation of standing orders
- d) Control centre and alternative
- e) Adequate communications, and alternatives
- f) Protection of records
- g) Warning (1) External - liaison with local authority and national warning system; (2) Internal - inter-plant - inter-departmental; (3) Types of warning : visual - audio-visual; (4) Radiological monitoring and reporting
- h) Designation of key officers and executives
- i) Nomination of operational personnel
- j) Training
- k) Information Centres

3. Cooperation

3.1 Advance preparation

The disaster control organization will operate out of control centres following the attack. Consequently, control stations for the post-attack

actions should be designated and equipped. They will include a command post for the utility top management and additional control points, assembly areas, reporting centres for cooperative arrangements.

3.2 Cooperative arrangements

Interconnections with adjacent systems should be planned for and provided. Utilities over wide areas should be included in cooperative agreements. An area-wide inventory should be made of materials, equipment, chemicals and personnel available to all of the cooperating agencies. Emergency equipment and materials should be standardized. Agreements should provide for a comprehensive system of area-wide communication facilities and radiological monitoring services; damage assessment, personnel training, integration of emergency plans with supplies of materials, components and services; and keeping other agencies advised of current conditions, utility emergency personnel and location of pertinent records. In addition, agreements can call for the maintenance or planning of interconnections with industrial or other private auxiliary supplies under proper supervision. The utility should co-ordinate all such cooperative arrangements with the local Civil Defence plan.

3.3 Public information

To prevent public confusion following an attack, the cooperation plan should provide procedures for release of information to the public. This mission can be achieved in cooperation with the press, radio and all information media and the local Civil Defence authorities. The information released in announcements should be prepared in advance to face emergency conditions that are likely to develop.

4. Mutual aid

4.1 Purpose

The primary purpose of mutual aid is to establish a workable emergency organization that will minimize damage and ensure the continued operation or rapid restoration of damaged areas. Such a plan can be a most effective force for dealing with sudden calamity in industrial establishments and is part of the total Civil Defence emergency plan. It is not only in time of conflict that such effort is important, but experience shows their usefulness in peacetime crises also.

4.2 Objectives

- a) To co-operate with the local Civil Defence director and the community's emergency services (such as police, fire, etc.) in safeguarding industrial plants to ensure continuity of production and distribution.
- b) To strengthen the emergency Civil Defence leadership of local government and to increase the capability of the entire community to survive enemy attack or natural disaster by enrolling the trainees and equipped forces of the industrial mutual aid association as auxiliaries in the various emergency services of local government.
- c) To encourage the principle of self-sufficiency in protection of each member plant, with material assistance to and from others, according to pre-arranged pacts.

- d) To assist, as requested by a member plant, in determining potential effects of enemy attack upon property and personnel.
- e) To improve techniques, equipment and facilities for industrial protection.
- f) To establish a co-ordinated and practical long-range plan for mutual aid to deal with local emergencies of all types.
- g) To build and sustain confidence in the abilities and use of pooled survival resources of its members to meet and handle disaster situations.

4.3 Recommended steps for organizing Mutual Aid Board

- a) Get in touch with the local Civil Defence director.
- b) Set up an informal steering committee.
- c) Draft objectives, articles of association, inventory forms, operations methods, necessary committees, and a list of prospective members.
- d) Send invitations to prospective members to attend an organizational meeting. These members should be part of the industrial community. Natural topography and traffic flow patterns should be considered when the area is local in nature.
- e) At the meeting, discuss objectives, organization, committees and methods of operations. An important purpose of the meeting is to provide enough information to those who transmit the facts and their recommendations to their management for approval.
- f) Elect officers such as a president, secretary, and treasurer; and form an operating board.
- g) Select a mutual aid co-ordinator to maintain inventory of resources and equipment and serve as dispatcher of assistance in emergencies.
- h) Appoint operating committees such as Risk Evaluation, Material Assistance, Communications, Security and Traffic Control, Public and Press Relations, Special Services and Liaison, Programme, Membership and By-laws, and others as appropriate.
- i) Announce schedule of the next meeting.

4.4 Duties of the Mutual Aid Board

The basic operating element of a mutual aid association is an operating board which meets regularly to plan and develop emergency procedures. Its first task is to name the mutual aid co-ordinator and appoint committees. A secretary to keep records of the meetings and ban correspondence should be elected.

Duties of the operating board include : resolving group operating problems; preparing and improving effectiveness of emergency plans; establishing a method of pooling resources and issuing and controlling their use; and developing training programmes so that teams from member plants can become familiar with available equipment and damage control techniques; conducting tests drills and exercises. The principle duties of a mutual aid co-ordinator include receiving requests for assistance

from members, and maintaining liaison with industries, localities and other governmental agencies.

4.5 Mutual aid agreements for industrial zones

Mutual aid agreements provide for the emergency exchange of personnel equipment and materials. Such agreements should also call for co-ordination of communications, training, reconnaissance, and damage assessment, as well as standardization of material and equipment. Effective mutual aid includes agreements with industrial firms, construction companies, and electric, gas and telephone utilities, and co-ordination with Civil Defence, health, fire and police departments, and other interested agencies. Co-ordination is especially needed with the local Civil Defence agency and with other utilities in the community and in the geographical area. The local Civil Defence director will be able to provide advice and assistance in the establishment of a mutual aid association.

D. CONCLUSION

In conclusion, I should appreciate the successful efforts of the International Agencies which gave us a chance to exchange knowledge and experience in Civil Defence. I am looking forward to closer International and National efforts to emphasize security, peace and prosperity to our people.