

CHAPTER 6

PLANNING AND ADMINISTRATION OF ENVIRONMENTAL HEALTH ACTIVITIES

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The technical ability to solve environmental health problems raised by natural disasters is only one aspect of the work. The effective application of such technical knowledge under difficult conditions requires advance planning and coordination with other activities in the area stricken by the disaster, so that full use can be made of available resources.

Immediately after a natural disaster the public health team - comprising at least a public health doctor or physician, a sanitary engineer or sanitarian, a nurse, a laboratory technologist, and other allied staff - should launch a comprehensive public health programme. Active case-finding and reporting of infectious diseases, immunization and other prophylactic measures, diagnostic services and chemotherapy, first aid and surgical operations, nursing services and environmental health work, all help to protect or restore the health of the afflicted population. All public health resources should be deployed to prevent the outbreak of communicable diseases and to alleviate suffering.

COORDINATION: Often, sanitation personnel will have to rely on the general relief work administration for communications, transport, equipment and supplies. Consequently, the importance of establishing an effective plan for coordinating all services engaged in relief work requires a brief explanation.

Unplanned or improvised coordination of the many activities involved in an emergency causes a series of difficulties in applying relief action. The chaos and overlapping of efforts that often occur at such times can largely be avoided by proper preparations. In countries stricken by repeated disasters, a central authority should be appointed to assume

over-all responsibility for relief operations and to coordinate activities, make policy decisions, and enforce them expeditiously. This body should be given full powers to establish priorities, cut through red tape and act quickly; if it is to operate effectively, its director will need a dynamic personality and strong leadership ability. The over-all responsibility for relief work is entrusted in some countries to the civil defence organization, in others to a national relief committee constituted by legislation. The type and structure of this coordinating body depend on the political system and customs of the individual country. However relief is organized, specific assignments should be allotted to different governmental departments and welfare agencies. It is essential to organize relief committees at all levels, i.e., national, provincial, and local.

The inclusion of a senior sanitary engineer in the central relief authority not only ensures better environmental control but also saves effort and money. It should be his responsibility to draw up an effective plan for the coordination of sanitation operations within the over-all relief scheme. The relationship of environmental health services with other agencies engaged in relief work is discussed in the Guide to Sanitation in Natural Disasters. (See Sources)

PLANNING: The importance of advance planning for disasters cannot be overemphasized. Any disaster is capable of disrupting the ordinary life of people, disorganizing public services and affairs, and causing physical damage. Goodwill and concern for other people are not enough to avert the grave consequences that natural disasters usually impose upon people. Experience has shown that errors are committed when there are no proper organization, no trained people to act according to a previously arranged plan, and no efficient direction, coordination and control of the relief operation. These errors lead to confusion, delay, oversights, misuse and duplication, and make it more difficult for the responsible authorities to mobilize all the available resources fully and in good time.

The United Nations and the League of Red Cross Societies have given high priority to planning for disasters. The League has offered its services to governments and national Red Cross Societies for the preparation of

national plans for disaster relief operations, and a manual issued by the United Nations in 1966 contained the following statement :

"The United Nations, in cooperation with the League of Red Cross Societies, is prepared to offer assistance in pre-disaster planning, such as in the formulation of predisaster plans, organization of inventories of technical equipment, services and supplies which could be mobilized at the time of disaster, revision of building codes, etc. Requests for such assistance presented through the Resident Representative of the United Nations Development Programme will be considered in the normal way with due consideration being given to the priorities attached to such requests by the requesting Governments within they country programmes, by substitution of projects or through the use of operational savings."

The assistance provided by international organizations is discussed in detail in the Guide cited above.

The preparation of a disaster manual or relief handbook is one of the tasks that should be carried out during the planning period. Schemes for insurance or compensation in respect of losses resulting from a disaster should also be planned and instituted.

Pre-disaster planning is in fact the preparation in advance by the government of a relief plan. It defines the responsibilities entrusted to each of the bodies involved in relief operations : army, police, public services, civil defense, Red Cross, private organizations, etc. Responsibilities are distributed according to the individual character, the specialized field, and the personnel and material resources of each agency. Provision should also be made in the plan for the effective coordination of the delegated activities. A chart showing the general responsibilities in natural disasters is presented in Fig.1.

The disaster plan may extend to the rehabilitation phase, if this responsibility has been entrusted to the same national body. This would be advantageous, because many relief activities could be geared to rehabilitation, so saving money and effort.

In all aspects of the over-all plan, including environmental health operations, the question of logistics is of capital importance.

The national relief body should draw up an operations plan for a general type of emergency, since the exact details of the emergency to be faced are usually unknown. Full knowledge of the plan and of the basic concepts of operation is essential to the conduct of activities during an emergency: it enables the responsible officers to carry out coordinated work towards a common objective without delay and overlapping. The scope of the plan depends on the emergencies expected, the number of people at risk, the extent of the affected area, and the frequency of emergencies. Arbitrarily, the operations plan may be based on provision for 10 000 persons and on distribution of the necessary supplies and equipment so that they can be pooled in the area of the disaster within 48 hours.

The operations plan should define (a) objectives; (b) command and control structure; (c) limits of authority and responsibility; (d) duties and lines of communication; (e) channels for requesting and supplying additional resources; and (f) details of operation.

Each service involved in relief operations, including the environmental health service, should develop its own operations plan based on the general principles already described. The operations plan for emergency sanitation should include :

- (1) effective liaison with other health departments and the relief organization;
- (2) inspection, identification, and evaluation of sanitation problems;
- (3) immediate mobilization of personnel and equipment;
- (4) emergency action to control or eliminate environmental health hazards;
- (5) emergency restoration of water supply, wastes disposal services, etc.;
- (6) evaluation of damage to public sanitary installations and provision of advice on remedial measures;
- (7) report on conditions and on measures applied.

ORGANIZATION: In emergencies, organization is directed to the adaptation of government and welfare units and their resources to meet the needs of the situation. Organization charts show diagrammatically the chain of command and areas of responsibility; specimen charts for the organization of (a) relief work in general, (b) public health, and (c) environmental sanitation are shown in the Guide.

The relief committee should be headed by the high commissioner appointed by the government; its members should include the directors of services and representatives of army staff and of welfare societies and other national or international agencies concerned with relief work.

Two important aspects of organization that should be borne in mind are :

- (1) Span of control : efficient supervision and control at all levels can be exerted only when the labour force is grouped in small teams of 5-7 persons under a supervisor.
- (2) Operational area : each team or operational disaster unit should serve in a specified area. If the region affected by the disaster is divided into operational areas and each of these is assigned to a working unit, this contributes tremendously to the smooth running of operations.

The sources of funds for disaster relief are as follows :

- (1) Ordinary funds (current budget) : part of the expenses can be charged to the current budget; savings may be made available for emergency operations.
- (2) Emergency funds : there may be an emergency fund at the disposal of the government at all times, or a specific sum of money may be approved after disaster occurs.
- (3) Non-governmental sources : welfare societies (e.g. the Red Cross), charity organizations, and clubs.
- (4) Donations for disaster relief : a bank or post office account may be opened to collect individual contributions.
- (5) Bilateral and multilateral sources : governments may have bilateral or multilateral agreements with other nations to provide assistance in case of national emergencies.

- (6) International sources : the United Nations and its specialized agencies have made provisions for assistance in emergencies; these are described in Annex 3 of the Guide.
- (7) Individual donations from governments : in the case of national emergencies, other governments frequently make donations for the relief and rehabilitation of the afflicted people.

It is advisable to pool all financial resources and put them at the disposal of the body in charge of national relief.

PERSONNEL

Type of Personnel

Professional sanitary engineers are needed at policy-making levels, for technical services, surveys, over-all planning and supervision. Professional sanitarians are needed to assist the sanitary engineers in making surveys; in the control of water quality, food sanitation, and wastes disposal installations; and in vermin control, supervision of the work of auxiliary sanitation personnel, etc. Auxiliary sanitation personnel are needed to look after all sanitary installations, food sanitation, vermin control operations, disinfection, supervision of workers and volunteers, health education, etc. These auxiliaries should have received formal education in the main aspects of environmental sanitation, since they will have to carry out the bulk of the field work. If the emergency is too extensive and the number of professional environmental health workers is not adequate, the manpower may be supplemented by sanitarians working in industry, consulting civil and sanitary engineers, dairy personnel, private laboratory personnel, industrial housekeeping personnel, railway and airline sanitation personnel, water company personnel, pest-control operators, teaching staff of universities and institutes in the fields of sanitary sciences and sanitary engineering, science students, etc. These individuals should receive orientation instruction and should work under public health engineers.

Number of Personnel

The number of environmental health personnel needed in an emergency depends on the nature of the community, the number of people affected, the extent of the area affected, the type of services required, the effectiveness of transport and communications, the training and efficiency of available personnel, etc.

Training

It is not the purpose here to discuss the educational requirements of environmental health workers, but rather to stress the need for training in special fields and for organizing courses and exercises in emergency field work from time to time. Fighting against the consequences of a disaster can be compared with war : preparation and peacetime manoeuvres are necessary to keep personnel ready to face emergency situations. In addition, some sanitarians may receive specialized training in vermin control, disposal of wastes, mortuary service, food sanitation in mass feeding centres, field hospital sanitation, and similar subjects. Sanitary engineers working in public health may be given practical training in the emergency operation and maintenance of water and sewage plants and systems. The training courses for emergency action must be practical, with the minimum theoretical work. Demonstrations and exercises should be arranged so as to use the equipment and supplies stockpiled for emergencies.

A detailed manual of environmental health procedures in emergencies, designed to meet local needs and to make the best use of local resources and facilities, will be of great assistance in the training of personnel.

Use of volunteers

It is useful to train young members of welfare societies (e.g. the Junior Red Cross), scouts, and members of mountaineering and sports clubs in emergency sanitation. Volunteers may also be drawn from industry and elsewhere. It is possible to use young males for sanitation work, giving them on-the-job training for specific activities. Volunteers can always relieve professionals of some of their tasks, and this possibility of augmenting the efficiency of the available staff

should never be overlooked. However, volunteers must always work under professional supervision.

EQUIPMENT AND SUPPLIES: It is essential that a comprehensive list of equipment and supplies for use in emergencies be prepared in cooperation with other services. Obviously, there is no need for the environmental health division to stock all the items itself. The important point is that provision is made for their speedy transport and immediate availability where they are needed. Natural disasters leave no time for urgent requisitioning and purchasing, which in many countries are subject to complicated rules and regulations. Heavy equipment is usually very expensive, and need not be stored; it is usually available from the army or from the highway or public works departments. Certain supplies, such as kitchen utensils, temporary shelters, etc., may be the concern of welfare agencies. The sanitary requirements for these supplies could be discussed with other agencies involved in relief work. A list of necessary chemical supplies, pipes, fittings and jointing materials, tools for a mobile repair unit, spare pumps and power units, trucks, tanks, and many other items may be prepared in collaboration with the officials in charge of water and sewage works. Follow-up is necessary to ensure that the equipment and supplies needed for the emergency operation of water and sewage systems are purchased and stocked properly for speedy delivery and use. In large-scale emergencies, it may be necessary to draw material from every possible source. It is important to ensure that the equipment and supplies stored for emergency use conform to standard specifications, so that the disaster-afflicted community can benefit from the resources of other communities.

A list of equipment and supplies required for emergency sanitation work for 10 000 people is given in Annex 4. The items on this list may be stock-piled by the environmental health service or other agencies, but they should be available to the sanitation personnel at all times. Some of the equipment and supplies may be distributed to different regions of a country. If so, plans should be made for their rapid transfer in case of a major emergency.

It is recommended that inventories be reviewed frequently by environmental health officials to keep them up to date. Periodic tests must be made to ensure that the equipment is always in working condition. These same supplies should be used for training and exercise purposes. Some

items of equipment may be used in routine environmental sanitation operations and need not be stockpiled, but there should always be an adequate reserve of supplies.

Equipment that might be required by a sanitarian working in a disaster area is listed in Annex 5 of the Guide.

TRANSPORT: Field vehicles of the jeep or Land Rover type, trucks, boats, and planes are very useful in mobilizing men, equipment, and supplies. Vehicles enable the most efficient use to be made of the available technical staff and thus reduce the number of personnel needed. Moreover, an important factor in emergency work is speed and this can only be obtained by the use of adequate vehicles. It is recommended that engineers and sanitarians in planning and supervisory positions be provided with sufficient transport. Professional auxiliaries who have to work in more than one area also need transport. Trucks should be made available for prompt delivery of equipment and supplies. The number of vehicles needed depends on many factors. Roughly speaking, five vehicles of the jeep or Land Rover type, two 3/4 ton trucks and one 3-4 ton truck would suffice for sanitation operations for 100 000 people. Boats and planes may become necessary and should be obtained through the relief organization.

LIVING QUARTERS AND FOOD SUPPLY FOR RELIEF PERSONNEL: Emergency relief imposes long working hours, and sometimes workers spend 14-16 hours a day in adverse environmental conditions for a considerable period. This hard work can exhaust the strongest person after a few days, and proper rest and food are needed to compensate for the loss of energy. In most areas afflicted by disaster food soon becomes scarce. The relief personnel must be properly looked after so that they can continue working efficiently: they should be provided with adequate living quarters where they can rest, wash, and eat one hot meal each day.

It is recommended that the environmental health division make provisions for its own personnel. To depend on welfare agencies for food and shelter is unwise and unfair, as these agencies will already have more than enough to do to provide victims with shelter and food. Consequently, tents, stoves, cooking utensils, lamps, water containers, blankets, sleeping bags, chairs and tables, packaged rations, and other camping

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equipment should be included in the supplies stored for use in emergencies.

RULES AND REGULATIONS: Sanitary rules and regulations designed for normal conditions are not easy to apply in emergencies : they are too elaborate and detailed for such situations. Simple and brief regulations, tailored to the requirements of the actual situation and adapted to the existing possibilities, should therefore be worked out by supervisors and made known to the general public. This is a matter of applying basic principles to the improvised installations, and success depends to a great extent on the ingenuity, training and experience of the supervisory environmental health personnel. Once realistic regulations are laid down they should be strictly observed.