

# 1. About this book

## 1.1 Objectives

Emergencies and disasters can occur anywhere in the world, affecting human health, people's lives and the infrastructure built to support them. Environmental health problems arising from emergencies and disasters are connected to their effects on the physical, biological and social environment that pose a threat to human health, well-being and survival: shelter, water, sanitation, disease vectors, pollution, etc. This book deals with the management of such problems, particularly from the standpoint of the individual with environmental health responsibilities before, during and after emergencies and disasters. It is therefore concerned with:

- Reducing the vulnerability of communities to hazards and increasing their ability to withstand disruption and to recover rapidly.
- Strengthening routine services so that the potential health effects of emergencies and disasters are minimized.
- Responding to emergencies and disasters with appropriate environmental health activities (water supply and sanitation, vector control, etc.).

The book does the following in pursuit of these objectives:

- It emphasizes the importance of setting priorities, and provides an overview of the immediate and long-term health priorities in emergencies and disasters, within the context of overall health plans and multisectoral disaster management.
- It considers environmental health needs in emergencies and disasters in terms of a set of interventions aimed at reducing community vulnerability.
- It provides guidance on environmental health actions in the prevention, preparedness, response and recovery stages of the disaster-management cycle.
- It outlines approaches to decision-making.
- It describes simple, practical, technical interventions which will meet the priority environmental health needs of communities.
- It describes related aspects of primary health care, including training programmes, information systems and community involvement.
- It outlines the need for, and approaches to, coordination and collaboration between all sectors.

The fundamental goals of this book are to provide programme managers and field staff with a framework for thinking about and planning for disasters and emergencies, and with an overview of the technical aspects of environmental health management.

## 1.2 Target audiences

This book was written mainly for two groups of readers: emergency planners/administrators and environmental technical staff. For the first category, it serves as an introduction to environmental health needs for disaster management. For the

second, it provides an insight into environmental health within the overall disaster-management system.

This book will also be of interest to anyone who plans and supervises environmental health activities on a day-to-day basis and to front-line staff working on public health inspection and improvement, such as health officers, sanitarians and employees of water and sanitation companies; community-level workers who may play a leading role in emergency preparedness, such as teachers or Red Cross/Red Crescent workers; and primary health-care workers who may be called upon to respond to an emergency. The book should also be useful to staff and volunteers in nongovernmental organizations who, through their activities in community development, contribute to the long-range management goals of environmental health in emergencies and disasters.

### 1.3 Organization of the chapters

This book deals with environmental health during the disaster-management cycle, described in Section 1.5. Part I answers the questions: what, where, when, why and who? Part II answers the question: how?

Part I (Chapters 2–5) takes up each element in the disaster-management cycle and shows how appropriate planning and organization can enable those concerned with environmental health to meet the challenge of emergencies, and then how they can help promote disaster prevention as a developmental activity. Chapter 2 gives an overview of emergencies and disasters and presents an integrated approach to managing them, based on the phases of the disaster-management cycle. This is discussed from the point of view of environmental health management in the rest of Part I. Chapter 3 concerns planning, prevention, preparedness and mitigation; Chapter 4 addresses emergency response; and Chapter 5 outlines rehabilitation, recovery and progress towards sustainable development.

Part II (Chapters 6–14) deals with the practical implementation of technical measures, according to the priorities identified in Part I. It is devoted to the environmental health measures necessary to effectively manage and implement emergency relief and recovery. It covers shelter; water supply; sanitation; food safety; vector and pest control; the prevention of epidemics; chemical and radiation incidents; handling of the dead; and health education and community participation.

### 1.4 Scope

Because this book is intended to be of use in any part of the world, it is general in character and provides guidance on the application of basic principles. Each emergency has its own characteristics and presents specific constraints and opportunities, so recommendations need to be adapted to each context. The book may be useful as a basis for regional- or country-specific guides and training materials in local languages. However, it is not designed as a training course or textbook.

Essentially, the measures recommended are adaptations of environmental health measures appropriate in normal conditions and are neither exclusive nor exhaustive. The special knowledge and initiative of the individual will always be of major importance in emergencies.

The book does not deal directly with complex emergencies (those with a strong military and political dimension), although it does address some of the health consequences of conflict-related disasters, particularly those involving mass population displacements. Complex emergencies are discussed briefly in Chapter 2.

## 1.5 Approach

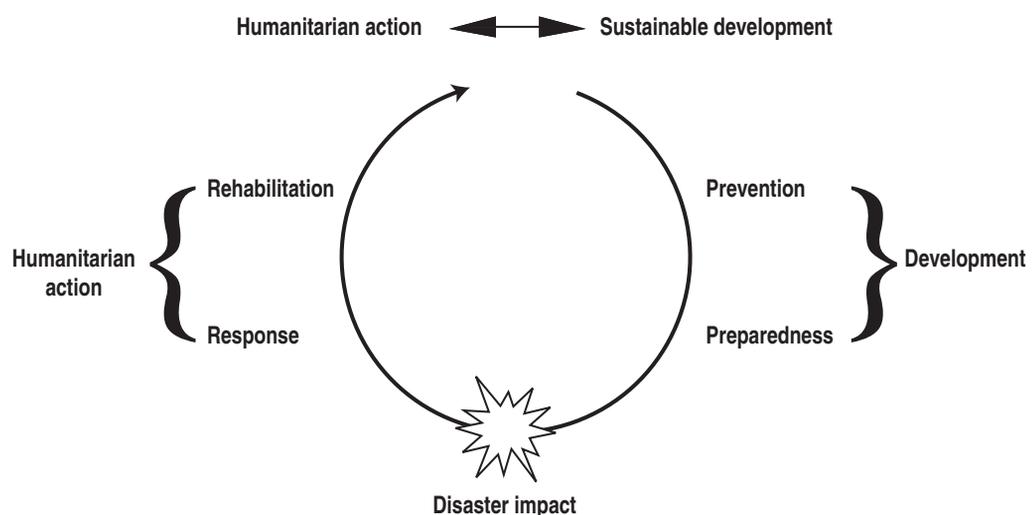
As a result of changes in the field of disaster management over the past 30 years, this book takes an integrated approach that follows the phases of the disaster-management cycle. This integrated approach to disaster management has been quite successful in many countries. Together with overall health planning, it provides the context for environmental health management in emergencies and disasters. According to this view, disaster management requires a continuous chain of activities that includes hazard prevention, preparedness, emergency response, relief and recovery, including activities to reconstruct infrastructure and rehabilitate shattered lives and livelihoods. Although there is some variation in terminology for the different phases of disaster management, and numerous typologies have been developed (e.g. Alexander, 1993; Berke, Kartez & Wenger, 1993), they all describe a disaster-management cycle that consists of connected activities and phases, some of which occur simultaneously. For the purposes of this book, the following three major phases have been chosen (see also Figure 1.1):

- planning, prevention, preparedness and mitigation;
- emergency response;
- recovery, rehabilitation and reconstruction to promote sustainable development.

Possible actions for preventing future disasters include early warnings to reduce the effects of extreme events before they happen (usually referred to as mitigation), to reduce potential losses and to increase the level of preparedness in society. Learning from disasters as they occur provides opportunities to increase the effectiveness of disaster preparedness by improving risk assessment and by mapping risk more completely.

Within each phase of the disaster-management cycle, short-range goals can simultaneously contribute to long-range ones, such as strengthening people's capacities to withstand disasters. For example, the reconstruction of water supplies should merge naturally into on-going development activities (such as community mobilization) to further improve the water-supply systems (or other agreed environmental health goals). During "normal" times, these health development activities should aim to reduce the vulnerability of people and infrastructure to future emergencies and disasters. Thus, the routine construction of water works should, for example, incorporate design features that protect them from known hazards. Community participation in each phase strengthens

Figure. 1.1 The disaster-management cycle



the organizational structure of neighbourhoods and localities, and improves methods of providing early warnings of hazards, of planning emergency responses, etc.

The concept of integration is central to current thinking and practices of disaster management. There are at least four ways in which the integration of efforts is important:

1. *It is necessary for different sectors to work together.* In environmental health management, this often means combining the efforts of the public sector (e.g. health, public works, housing) with those of the private sector (construction, engineering, etc.). This is true for all phases of the disaster-management cycle. Close coordination among sectors is vital, not only for effective emergency response, but also for long-term disaster prevention and emergency preparedness planning.
2. *Environmental health planning must be viewed as part of overall health planning.* Health planning, in turn, should not be conducted in isolation from comprehensive social and economic planning.
3. *Rural and urban communities must participate fully in all phases of emergency relief and development.* The community role in emergency response is obvious, since the community is immediately affected and on the scene when disaster strikes. However, communities can make valuable contributions to planning, as well. Community members know the local circumstances in both rural and urban environments, and understand what makes some people more vulnerable to hazards than others.
4. *A responsive and accountable system of professionals and volunteers is needed.* These personnel can mediate between national counter-disaster agencies and grassroots communities at intermediate administrative levels, including provinces, districts and municipalities.

An integrated approach, defined in this manner and promoted throughout this book, will result in action that is responsive to local needs. It will provide a supportive framework for improvisation by front-line workers in meeting those needs, and will allow all phases of the emergency-management cycle to be improved as lessons are learned.

## 1.6 Glossary of terms

Many terms used in the field of emergencies and disasters are interpreted in a number of ways, which can lead to confusion. The definitions given here refer to terms frequently used in Part I of this book. Most are drawn from the World Health Organization (1999a).

**Community** is the smallest social grouping in a country with an effective social structure and potential administrative capacity.

**Complex emergencies** are situations of disrupted livelihoods and threats to life produced by warfare, civil disturbance and large-scale movements of people, in which any emergency response has to be conducted in a difficult political and security environment.

**Disasters** are events that occur when significant numbers of people are exposed to hazards to which they are vulnerable, with resulting injury and loss of life, often combined with damage to property and livelihoods.

**Emergencies** are situations that arise out of disasters, in which the affected community's ability to cope has been overwhelmed, and where rapid and effective action is required to prevent further loss of life and livelihood.

**Emergency planning** is a process that consists of: determining the response and recovery strategies to be implemented during and after emergencies (based on assessment of vulnerability); responsibility for the strategies; the management structure required for an emergency; the resource management requirements.

**Emergency preparedness** is a programme of long-term development activities whose goals are to strengthen the overall capacity and capability of a country to manage efficiently all types of emergency and to bring about an orderly transition from relief through recovery and back to sustained development.

**Emergency prevention** is based on vulnerability assessment and concerns the technical and organizational means of reducing the probability or consequences of disasters and the community's vulnerability.

**Environmental health management** is the intentional modification of the natural and built environment in order to reduce risks to human health or to provide opportunities to improve health.

**Extreme events** are known natural or manmade events that occur outside their normal range of intensity, energy or size, which often produce life-threatening hazards.

**Hazards** are phenomena or substances that have the potential to cause disruption or damage to humans and their environment. The words **threat** and **hazard** are often used in the same way.

**Mitigation and prevention** are actions aimed at reducing or eliminating the impact of future hazard events, by avoiding the hazard or strengthening resistance to it.

**Mitigation** comprises measures taken in advance of a disaster aimed at decreasing or eliminating its impact on society and the environment.

**Preparedness** comprises activities designed to minimize loss of life and damage, to organize the temporary removal of people and property from a threatened location, and facilitate timely and effective rescue, relief and rehabilitation.

**Prevention** involves activities designed to provide permanent protection from disasters.

**Resilience** is a community's ability to withstand the damage caused by emergencies and disasters; it is a function of the various factors that allow a community to recover from emergencies.

**Susceptibility** concerns the factors operating in a community that allow a hazard to cause an emergency (disaster), e.g., proximity to hazard, or level of development.

**Vulnerability** is the degree to which a population or an individual is unable to anticipate, cope with, resist and recover from the impacts of disasters. It is a function of susceptibility and resilience.

**Vulnerability assessment** makes it possible to anticipate problems that specific groups will face in the event of a disaster and during the period of recovery. This is also known as hazard assessment, risk assessment or threat assessment.

**Vulnerability reduction** comprises the steps taken to reduce people's exposure to hazards and increase their capacity to survive and to recover from disasters.

