Environmental health in emergencies and disasters

A PRACTICAL GUIDE

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Preface

The WHO *Guide to sanitation in natural disasters* (Assar, 1971) summarized the essential aspects of environmental health management in disasters. These included the provision of emergency water and sanitation services; the burial or cremation of the dead; vector and pest control; food hygiene; and the assessment of the danger of epidemics following emergencies and disasters, etc. Thirty years later these aspects remain essential, though the needs, challenges and opportunities are greater.

This new book deals not only with emergency response, but also with measures designed to reduce the impact of disasters on environmental health infrastructure, such as water supply and sanitation facilities. It also aims to strengthen the ability of people to withstand the disruption of their accustomed infrastructure and systems for environmental health (e.g. shelter, water supply, sanitation, vector control etc.) and to recover rapidly.

What has not changed since the earlier guide was published are the high social and financial costs of emergencies and disasters, and the associated human tragedy, as well as the need for a rapid, efficient, well-prepared response to save life and to restore and maintain a healthy environment. As in previous emergencies, these realities and imperatives remained the same for the earthquakes in Mexico City and Gujarat, the eruption of Mount Pinatubo, the floods in Mozambique and the siege of Sarajevo.

The physical nature of the extreme natural events that can trigger disaster also has not changed. Hagman et al. (1984) and other researchers in the 1980s concluded that the cause of the increase in loss and suffering due to disasters was not that nature had become more violent, but that people had become more vulnerable. Nearly 20 years later, socioeconomic and political factors, such as mass migrations, urbanization, the destruction of natural resources and war continue to account for growing losses from disasters.

There is no evidence that the physical processes causing geological hazards such as earthquakes and volcanoes have altered. However, evidence increasingly indicates that global climatic change related to human activities is affecting human well-being and health (McMichael et al., 1996). And because more people live in exposed places with fewer resources to fall back on, climatic hazards such as floods, hurricanes, wildfires and droughts have a greater impact than in the past. The 1997–1998 El Niño event was the strongest ever recorded and the number of hydrometeorological disasters since 1996 has more than doubled (International Federation of Red Cross and Red Crescent Societies, 2001). If these trends continue, the rise in sea-level will soon have to be added to the factors making many people's lives more hazardous.

While it is too early to judge the full impact of global environmental changes, it is clear that people's vulnerability to disasters has changed. A commitment to economic growth at any cost has brought with it serious health consequences due to increasing poverty and declining living standards for many (Cooper Weil et al., 1990; Warford, 1995) and degradation of the built and natural environments (Cruz & Repetto, 1992). Poverty has often resulted in the misuse of natural resources, causing land degradation (deforestation, destruction of wetlands and desertification) and decreasing food

security. In certain parts of the world, high rates of population growth, sometimes combined with ethnic strife, have increased the pressure on urban and rural livelihood systems already weakened by the negative spiral of increasing poverty and decreasing environmental quality.

In a growing number of mega-cities, environmental health conditions are poor at the best of times and catastrophic at times of emergencies. As people try to find places to live in these crowded cities, they occupy increasingly dangerous places—for example, on steep, unstable slopes, in flood plains and near hazardous factories (Mitchell, 1996).

Rapid industrialization and new technologies have produced new hazards. The severity and frequency of technological emergencies have increased. With the proliferation of nuclear power and chemical plants over the last few decades, disasters on the scale of Chernobyl or Bhopal cannot be ruled out.

Political turbulence in many regions of the world has also increased the numbers of refugees and displaced persons fleeing complex emergencies and disasters, who often congregate in large camps where environmental health measures are insufficient. Their vital needs are urgent and massive. As a result, aid agencies are increasingly forced to challenge the orthodox distinctions between development and relief in the attribution of roles among government and nongovernmental organizations (Roche, 1994). In addition, global changes (environmental, economic and political) make an integrated approach to emergency management necessary.

The early 1970s were a watershed in international relief. Within a short period, international agencies had to deal with three large-scale disasters: civil war, causing famine in Biafra; an earthquake in Peru; and a cyclone in Bangladesh (East Pakistan at the time). Lessons were learned about planning and organization that began a new era in the scientific study of emergencies and disaster management. It is now possible to summarize this extensive experience and draw lessons for the environmental health management of emergencies.

During this period of rapid accumulation of international experience with emergency relief and recovery, new management processes were created and scientific and technological advances have begun to aid emergency management. Examples include the use of satellite images, positioning systems and communication aids to warn of disasters early and to coordinate relief. While many of the environmental health principles and actions discussed in this book are old and well established, some technologies such as prefabricated, portable water systems have come into use more recently.

In addition, more professionals are now aware of the links between emergencies, the environment and development. The distribution of goods and the reestablishment of services essential for human survival are no longer considered adequate responses to an emergency. Today, greater care is taken to avoid creating unnecessary dependence among affected communities and there is greater emphasis on supporting people to rebuild and recover by their own efforts after a disaster.

Over the past decade, a consensus has developed concerning the potential effectiveness of citizen and community participation in emergency management. It is easier now to mobilize such participation because of changes in the development models of the past 30 years. Rapid urban growth has brought a new generation of citizen-based organizations and more professional and responsive municipal governments. Citizen environmental and health activism has provided the basis for community participation in risk reduction. In a related development, women have taken on more public roles in society and their vital contributions at all stages of the disaster-management cycle have begun to be recognized.

Because of the experience with emergencies over the last 30 years, there exists today a greater political will to plan and to act strategically to prevent or reduce the impact of disasters and to meet humanitarian needs. A milestone in disaster management was

reached with the declaration in 1990 of the International Decade for Natural Hazard Reduction. Also significant for preventing disasters and reducing their impact was the work of the United Nations Conference on Environment and Development (held in Rio de Janeiro in 1992) and the United Nations Conference on Human Settlements (Habitat II, held in Istanbul in 1996).

On the other hand, there still is a large gap between policy commitment and implementation. Many donors still provide far too little support for strengthening emergency preparedness and for preventing disasters. Far worse is the "humanitarian gap." During the 1980s, development assistance to less-developed countries actually decreased (International Federation of Red Cross and Red Crescent Societies, 1993a) and fell by a further 11% in real terms between 1991–2000 (International Federation of Red Cross and Red Crescent Societies, 2001). Since there is a clear connection between successful development and increased protection from hazards, much more needs to be done.

While the number of people affected by disasters, excluding war, varies tremendously from year to year, the general trend is upwards. An average of 147 million people per year were affected by disasters between 1981–1990, but this increased to an average of 211 million people per year between 1991–2000 (though fewer deaths were recorded). The last 30 years' work with disasters demonstrates that much of the resulting suffering is preventable (International Federation of Red Cross and Red Crescent Societies, 1996). This book shows how, in a technical area like environmental health, even small efforts in planning and preparedness can yield great benefits in terms of preventing needless loss.

This book is intended to serve as a practical guide, calling attention to the need to link emergencies, disasters and development, not only in policy statements, but in practical ways. The book identifies physical and social factors and processes determining disaster vulnerability and offers the reader a range of vulnerability-reduction options in development and disaster mitigation. The book covers the main relief and response technologies for a range of natural and technological disasters, and deals with community participation, health education, training and other social aspects relevant to the protection of health and the environment in emergencies and disasters.

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This has been a long and rich process of updating and compiling the experience of many scientists and practitioners. It is hoped that this sequel to Assar's 1971 guide is worthy of all the effort, energy and support received throughout this process.