

# NATURAL DISASTER MANAGEMENT

A presentation to commemorate the  
International Decade for Natural Disaster Reduction (IDNDR)  
1990–2000

Edited by Jon Ingleton

We are grateful for the support and co-operation of many individuals and organisations who have volunteered their time and effort without remuneration. Sincere thanks are given to Terry Jeggle, whose enthusiasm and commitment has made the publication of Natural Disaster Management possible.

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**STATEMENT BY THE SECRETARY-GENERAL**

Almost daily, we are reminded of the threat of natural disasters. We cannot stop the forces of nature, but we can and must prevent them from causing major social and economic disasters.

Natural disasters profoundly affect our efforts to achieve sustainable development. By their powerful impact on the supply of primary commodities, they disrupt market stability, leading to steep declines in national revenue. In many developing countries, five per cent of gross national product may be lost to natural disasters each year.

We can no longer afford, financially or socially, to rely only on the expectations of emergency relief when disaster strikes. Much greater attention must be paid to preventive strategies aimed at saving lives and protecting resources and assets before they are lost. The programme for the International Decade on Natural Disaster Reduction, adopted by the United Nations General Assembly in 1989, has taken up this battle, combining resources, advanced scientific and technological development, information dissemination, human resource management and risk assessment in an integrated package. Agencies of the United Nations system such as the World Meteorological Organization, UNESCO and the World Bank have been particularly active in contributing their technical expertise.

As the International Decade for Natural Disaster Reduction comes to a close, it is essential that the aims of this initiative be continued. As more and more countries incorporate disaster prevention policies into national development plans, they are trying to enlist the help of educators, non-governmental organisations, civil society institutions and private sector enterprises. Indeed, prevention begins with information. This publication will make an important contribution by encouraging the widest possible partnership, communication and exchange of information among all groups of society and all nations to ensure a sustained commitment to a safer world, a world more resilient to the impact of natural hazards and disasters.

A handwritten signature in black ink, appearing to read 'K. Annan'.

Kofi Annan  
Secretary-General of the United Nations



Photo: E. Schneider, United Nations

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# Editor's Foreword

I have lost count of the number of times that, upon introducing the title of this book, *Natural Disaster Management*, the response has been a raised eyebrow of scepticism or even a short burst of laughter. One might forgive the postman's comment 'rather you than me', but when corporate and organisational leaders tried to convince me that we were fighting a lost cause, the incredible need for this book became only too apparent. Even more alarming is that the efforts of the International Decade for Natural Disaster Reduction have had to overcome this inherent cynicism many more times over, and magnified to many degrees.

However, for every sneer there has also been someone with the vision and belief that an initiative like this can be truly worthwhile, and that with patience, effort and downright bloody-mindedness, visible and tangible success can be found. One only has to scan the pages of this book to see that many of these visionaries have contributed their time and effort for, without exception, no financial gain, to share their experiences and pass on the lessons they have learned in our pursuit of managing natural disasters. This should inspire hope and belief in us all. Why? Because we can manage natural disasters. Depending on the hazard, its occurrence may be inevitable, but in every single case, the hazard need not lead to disaster. We need not build communities on floodplains, or construct fragile structures in earthquake prone regions, and we can educate our communities on how to preserve their lives and property when an extreme natural event takes place. In publishing this book, our simple aim is that more individuals are better prepared.

The opportunities for you, the reader, to gain from those whose unique position has enabled them to contribute to this book would not exist were it not for a small selection of brave organisations who have invested financial resources into making this book happen. We are delighted that they are able to profile their products and services within these pages and hope they benefit from doing so. We are also indebted to those governments who have embraced the IDNDR and taken positive action in the effort to achieve its lofty goals. In addition to the wealth of contributors that are listed in the following contents pages, we have received the support of more individuals, too numerous to mention, whose help and advice have combined to increase the worth of this book. It is with deep regret that I learned that one of our most dedicated supporters and a proactive member of our Editorial Advisory Board, Mohammed El-Sahb, IAPSO Commission of Natural Marine Hazards, passed away some months before the completion of *Natural Disaster Management*. We are proud to dedicate this book to his efforts towards our common goal.

As a genuinely collaborative piece of work, *Natural Disaster Management* may not ease the reader through its chapters with the uniform and consistent turn of phrase of a single author text. Rather, the rich diversity of authors has resulted in a book that probably does not lend itself to being read from cover to cover in a single attempt. This is a strength, not a weakness, as it offers a rare chance to view the same problem from many different perspectives, at the same time helping us to understand the varied, and sometimes conflicting, set of challenges that are faced by different communities throughout the globe. I hope that, whatever path you tread through this book, you take away something useful.



Jon Ingleton  
Editor

# Preface

As the twentieth century comes to a close, the subject of disaster reduction is at an important point on the world agenda. Especially important are the respective roles for facing the challenges which it poses for our professions and our societies. Perhaps 'poised' is not too strong a word to describe the position in which too many countries find themselves, as they face the risks of natural hazards in the near future. After the wide-ranging disaster experiences of recent years, more countries recognise now, more fully than before, that the risk of disasters is too important to be consigned only to planning eventual emergency relief measures. However, the seeming demands to employ disaster reduction measures can also appear, at first glance, to be so sweeping in their implications that they may easily deter us from taking methodical steps that can lead to long-term commitments.

By reflecting on the past ten years of the global initiative of the International Decade for Natural Disaster Reduction, we should recall what the United Nations General Assembly emphasised in its founding resolution of the IDNDR (UNGA, 1989). There, it emphasised the importance of adopting an integrated approach for disaster management in all its aspects to initiate a process towards a global culture of prevention. It is now even more evident ten years after the IDNDR resolution that the escalating costs of natural disasters cannot continue to be tolerated, or absorbed. Several highly visible, recent natural disasters such as Hurricane Mitch in Central America, the effects of smoke, fire and haze on three continents, the worst floods in over a hundred years in China, and the global effects of El Niño provide a foretaste of perhaps more severe, and possibly more frequent, disasters that we can expect in the future.

No country in the world will be devoid of the risk of natural hazards, but it will be up to each one of them to decide what measures are necessary, feasible, and affordable to embrace acceptable levels of protection against social and economic disasters. However that cannot, or should not, be accomplished in isolation. As the Yokohama Strategy stated in its Introduction, '...each country bears the primary responsibility for protecting its own people, infrastructure and other national assets from the impact of natural disasters, and accepting in the context of increasing global interdependence, concerted international co-operation and an enabling international environment are vital for the success of these national efforts' (*Yokohama Strategy*, 1994). We have all, through increasing contact and shared concerns, come a long way in raising awareness of an issue which can no longer be ignored. Much also remains to be accomplished, together.

With burgeoning cities around the world, disregard for the continuing demands that rapidly growing societies place on the natural and physical environments on which they depend, and the elusive achievement of sustainable development which many emerging economies seek, hazard awareness and risk management practice will have to be incorporated into national planning processes. Demonstrated practical experience, expanding scientific knowledge, and advances in technological applications also provide us with the abilities and the resources to reduce our exposure to risks.

If we are to protect the social resources and economic assets of our societies, we must embrace prevention as a public value. It requires a broad awareness, passed between generations, and a collective discipline embodied in numerous trades and professions. While sympathies may result from a humanitarian imperative, success can only be realised through practical means of reducing human vulnerability, safeguarding the environment, and seriously pursuing the fundamental principles of sustainable development. Disaster prevention does not respond to an event; it is rather a process. It proceeds, over time, sustained by the informed decisiveness of political commitment, the investment of resource allocations, and the application of knowledge tested by experience.

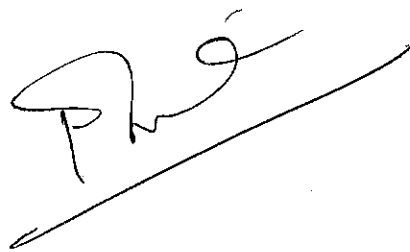
We have to look resolutely towards the future as we develop policy instruments which can motivate communities to accept the fact that expenditure which protects infrastructure of even greater value constitutes a positive investment. New organisational relationships become both necessary and possible, as the functions of hazard awareness and disaster prevention are recognised as being multi-dimensional, involving many skills and abilities. Modern communications and the explosion of information access around the world provides the basis for rapid and extensive exchange of ideas and experience. The early warning of threats becomes more possible than it has ever been before. All of these are opportunities, but only if we seize them.



First there has to be a common recognition of mutual interests in protecting collective resources, livelihoods, infrastructure, and assets that we call a society. Partnership becomes essential. Effective risk management for the future can only proceed if it is multi-sectoral, but yet integrated in the comprehensive planning and resource allocation that characterises all public effort. To be sustained, this will call for on-going commitments to the assessment of hazards and vulnerabilities, the fullest application of prevention measures where feasible, the informed use of preparedness arrangements where necessary, and the availability of effective and rapid response in the case of need. However, the misplaced reliance on the latter needs of responding to the effects of a disaster alone, without first seeking to prevent loss and damage in the first place, raises serious questions as to responsible governance.

For all of these reasons, I have the greatest appreciation that *Natural Disaster Management* has sought to demonstrate the number/diversity of hazard awareness and risk management efforts being pursued around the world. This volume admirably serves to demonstrate what is being accomplished in furthering the original objectives of IDNDR, as well as the promises for even greater opportunity in achieving disaster prevention in the future. The publication of this book has been a productive partnership, between the publisher, the IDNDR Secretariat and over one hundred authors — to achieve a common aim of demonstrating the practicality of efforts to reduce the likelihood of natural disasters. The articles demonstrate both the feasibility and the reach necessary to work towards a safer 21st century.

Most importantly though, I believe that the real story of successful natural disaster management is that it is a composite effort of many people doing their daily work, learning from their individual mentors, and teaching their students or successors. Information has been shared between colleagues, and among organisations. As the following articles demonstrate abundantly, all of the people described are necessarily attentive to hazards and dedicated to their professional roles in reducing risks. They are not waiting for something to happen first, or relying on it not happening at all. They have made their personal investments. They are doing it now.



Philippe Boullé  
Director, IDNDR Secretariat



Philippe Boullé, Director, IDNDR Secretariat, Switzerland