

Guidelines for Reducing Flood Losses



United Nations

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A contribution to the International Strategy for Disaster Reduction

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Foreword

Throughout the history of mankind, floods have brought untold wealth and prosperity to civilizations, and yet at the same time, they have caused tremendous losses and resulted in untold suffering for millions of people. Even today, floods lead all natural disasters in the number of people affected and in resultant economic losses, with these numbers rising at alarming rates.

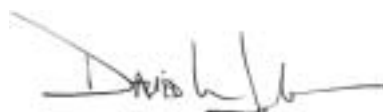
In response to the devastation arising from water-related natural disaster, particularly flooding, a series of three workshops and symposia were held, sponsored by the United States National Oceanic and Atmospheric Administration (NOAA) and the United Nations Department of Economic and Social Affairs. One objective of these events was to create comprehensive guidelines that could be used by governments, international organizations, non-governmental organizations and civil society to help avert losses from flooding.

The first session was the Flood Forecasting and Disaster Response Workshop. It was held in Tegucigalpa, Honduras, from 6-8 April 1999, following the devastation in the region stemming from Hurricane Mitch. This workshop was followed by an international Symposium on Flood Forecasting for the Americas, held in Brasilia, from 15-19 November 1999, and it was hosted by the National Institute of Meteorology of Brazil. A rough draft of these guidelines was prepared following this meeting. From 27-31 August 2001, an International Symposium on Water-related Disaster Reduction and Response was held in Bangkok, Thailand, wherein the draft guidelines were reviewed and new materials were gathered. Materials and ideas from these three meetings have been incorporated into this publication. It is hoped that these guidelines can be further improved and that additional experiences and concepts can be shared globally in an updated version.

This publication is based on the findings of those three sessions and is a contribution to the overall efforts that are required to help society cope with the forces of nature. Focused efforts are required to reduce the risk of flooding on society. Flood forecasting and warning systems, data collection systems, flood plain management practices and land-use planning, as well as economic and social measures can be adopted within an integrated framework to lead to sustainable solutions. Concerted efforts are required to achieve these solutions, and such efforts are necessary to stem the rising losses from water-related disasters. It is truly hoped that these guidelines will assist in the planning and implementation of actions leading to more healthy and resilient societies.



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Executive Summary

Floods have the greatest damage potential of all natural disasters worldwide and affect the greatest number of people. On a global basis, there is evidence that the number of people affected and economic damages resulting from flooding are on the rise at an alarming rate. Society must move from the current paradigm of post-disaster response. Plans and efforts must be undertaken to break the current event-disaster cycle. More than ever, there is the need for decision makers to adopt holistic approaches for flood disaster management.

Extreme flooding events are not relegated to the least developed nations, but can also devastate and ravage the most economically advanced and industrialized nations. In the last decade there has been catastrophic flooding in Bangladesh, China, India, Germany, Mozambique, Poland, the United States and elsewhere. When floods occur in less developed nations, they can effectively wipe out decades of investments in infrastructure, seriously cripple economic prosperity, and result in thousands of deaths and epidemics. The majority of the deaths associated with such disasters can be found within the most vulnerable members of society, namely women and children. The greatest tragedy is that most of these deaths, associated post traumatic stresses, and social and economic hardships can be either avoided or dramatically reduced through pre-, during, and post-disaster investments in preparedness activities and associated infrastructure, flood plain policy development, effective watershed land use planning, flood forecasting and warning systems, and response mechanisms.

It is recognized that comprehensive assessments of risks from natural hazards such as flooding, mud/land slides, and extreme wind and rain are necessary for society to better understand the risks which they face daily. Assessment of risk and the involvement of the community in the decision making, planning and implementation process can help lead to sustainable solutions. Solutions must reflect the human dimension and must also consider the impacts of changing land use on flooding, erosion, and landslides. Integrated water management practices must be embraced. Societies have much to learn from new approaches such as better forecasting techniques and applying experience gained from flood events and mitigation efforts employed elsewhere. Implementation will only be sustainable if solutions are suitable for the community at risk over the long term. As storms will continue to occur, risk assessment and planning followed by actions are needed to help reduce the overall risk to society, the economy and the environment.

These guidelines are oriented to the needs of the decision-maker and provide a description of the range of mitigation options that need to be considered when making efforts to reduce losses from flooding. The guidelines are designed to provide an introduction to the general area and to introduce the reader to various measures to mitigate the impacts associated with floods. A bibliography is provided that cites detailed material available for the planning and implementation stages. These guidelines are not meant to address floods resulting from storm surge, ice or debris jams, or the failure of human-made structures.



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