

# Preface

Over the past decade, the international community has paid significant attention to the topic of early warning systems (EWS). Ten years after the adoption of the Yokohama Strategy,<sup>1</sup> in January 2005, just a few weeks after the tragic December-2004 Indian Ocean Tsunami, the United Nations International Strategy for Disaster Reduction (UN-ISDR) convened the Second World Conference on Disaster Reduction in Kobe, Japan. During this conference, 168 countries negotiated and adopted the “Hyogo Framework for Action 2005–2015” (HFA), shifting the paradigm for disaster risk reduction from post disaster response to a more comprehensive approach, also including prevention and preparedness measures.<sup>2</sup>

The second high-priority area of the HFA stresses the need for, “identifying, assessing and monitoring disaster risks and enhancing early warning.” The HFA further stresses that EWS must be an integral component of any nation’s disaster risk management strategy, enabling governments at national to local levels and the communities to take appropriate measures toward building resilience in anticipation of disasters.

Many good practices around the world have demonstrated that EWS should be developed with a multi-hazard, multi-sectoral and multi-level (national to local) approach. Effective EWS are comprised of four operational components, to ensure that,

- Hazards are detected, monitored, forecasted, and hazard warnings are developed;
- Risks are analyzed and this information is incorporated in the warning messages;
- Warnings are issued (by a designated authoritative source) and disseminated in a timely fashion to authorities and public at-risk;
- Community-based emergency plans are activated in response to warnings, to reduce potential impacts on lives and livelihoods.

These four components need to be coordinated across many agencies at national to local levels for the system to work. Failure in one component or lack of coordination across them could lead to the failure of the whole system. The issuance of warnings is a national responsibility; thus, roles and responsibilities of various public and private sector stakeholders for implementation of the EWS should be clarified and reflected in the national to local regulatory frameworks, planning, budgetary, coordination, and operational mechanisms.

In 2006, the Global Survey of Early Warning Systems<sup>3</sup> and the outcomes of the Third International Early Warning Conference (EWC-III)<sup>4</sup> concluded that though progress has been made, many gaps remained to be addressed to ensure that EWS are implemented in all countries, particularly those with least resources. The 2006 Global Early Warning Survey Report cited challenges on legislative, financial, organizational, technical, operational, training and capacity building fronts.

Throughout these international events and assessments, it has become clear that governments and various agencies could benefit from experiences of other governments, with good practices in EWS that had been demonstrated to reduce loss of lives and livelihoods. It also has been voiced in many international and regional forums that there is a need for systematic documentation of such good practices, lessons learned, and synthesizing the factors that have contributed to their successes.

To this end, the 15<sup>th</sup> World Meteorological Congress in 2007 requested that such an initiative be undertaken by the WMO in partnership with its Member States and UN partners, particularly, related to institutional and operational aspects of EWS for weather, water and climate-extremes.

<sup>1</sup> Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation (1994).

<sup>2</sup> Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters (2005).

<sup>3</sup> Following the tragic 2004 Indian Ocean Tsunami, former UN Secretary General, Kofi Annan requested The Global Early Warning Survey. The Survey was implemented by an interagency task Team, Chaired by the World Meteorological Organization and the United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA), coordinated by the United Nations International Strategy for Disaster Reduction (UN-ISDR) (2006)

([www.reliefweb.int/rw/lib.nsf/db900sid/AMMF6VKH6Z/\\$file/UNISDR-Sep2006.pdf?openelement](http://www.reliefweb.int/rw/lib.nsf/db900sid/AMMF6VKH6Z/$file/UNISDR-Sep2006.pdf?openelement))

<sup>4</sup> Third International Early Warning Conference was sponsored by the Government of Germany and was held in Bonn, Germany, 27–29 March 2006.

The compilation of this book is the result of nearly four years of consultations and efforts, including, (1) two international Multi-Hazard Early Warning Systems Symposia to establish the criteria for good practice identification, documentation and synthesis processes, (2) a documentation process engaging many national agencies and ministries from each of the seven countries presented in this book; and, (3) a detailed synthesis process involving consultations with a large cadre of experts and practitioners in EWS, from around the world.

This book features cases from Bangladesh, megacity of Shanghai in China, Cuba, France, Germany, Japan and the United States of America, building on the expertise of WMO Members and relevant national ministries, UN and international partners. The book makes the case for greater integration of EWS in development, preparedness and planning at all levels of society. It provides the basis for a holistic and systematic approach to the mapping and evaluation of early warning systems including improvement and sustainability. It offers government officials, heads of agencies and their operational staff as well as other stakeholders in EWS with detailed information on policy and legal frameworks, institutional coordination and collaboration and operational aspects of EWS.

This work has clearly revealed that even though the specific design and implementation of EWS in each of the seven cases vary according to their governance mechanisms, specific history, culture, socio-economic conditions, institutional structure, capacities and resources for sustainability of their respective systems, there are principles common to all them that have led to the reduction of the impacts of hazards, particularly through saving of lives. This synthesis is provided in Chapter 10. It is noteworthy to highlight that while these cases are treated as good practices, no system is ever perfect. A critical commonality to the cases presented in this book is that there are feedback mechanisms and investments for continuous evaluation and improvement of as various aspects of these systems, over time.

As the editor of this book, it is my hope that this book will provide the motivation for the continuation of a systematic and holistic approach to the study and strengthening of EWS, with engagement of the public and private sectors, NGOs and the academic community.

I would like to thank the WMO Members, and in particular their National Meteorological and Hydrological Services and Disaster Risk Management Agencies for their commitment and contributions to this work. I also would like to thank the team within the WMO Secretariat that have supported this work. I am also grateful to the Secretary-General of WMO for his continuous support, encouragement and deep commitment.

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Maryam Golnaraghi

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