

## Purpose of the course

The course offers to build the capacity of professionals to design, manage, evaluate and undertake improvements in people centred end-to-end early warning systems for hydro-meteorological & geological hazards and extreme events associated with climate change and variability. It builds upon ADPC's two decades of experience in disaster management, facilitating regional cooperation and building capacities of disaster management institutions at all government levels, disaster management practitioners and communities. It extends to a decade of experience in institutionalizing weather and climate information applications for disaster mitigation and recently, in the implementation of Indian Ocean and South East Asia end-to-end early warning system for tsunami and hydro-meteorological hazards. Upon completing the course, participants will be able to: 1) understand operational mechanisms and procedures for the prediction, forecasting, monitoring and response to warning; 2) design end-to-end early warning systems for hydro-meteorological/geological hazards including, action planning for disaster preparedness, emergency management and social response with respect to early warning; 3) develop tools for early warning audits, identify current gaps in existing early warning systems and put in place enhanced people-centred early warning system with addressing the "last-mile" users; 4) harmonization of early warning system and disaster mitigation for effective disaster reduction; 5) develop tools to incorporate emerging new generation climate prediction technologies.

### ADPC's Key Early Warning System Programs and Projects

- Early warning communication with focus on cyclones for enhanced disaster preparedness in 24 countries in Asia Pacific Region (1989-94)
- Extreme Climate Events program (1998-2003)
- Climate Forecast Applications in Bangladesh (2000-3), Indonesia, Philippines, (2003-8), East Timor (2007-9)
- Enhancing early warning system through application of climate & flood forecast information for disaster preparedness & mitigation in Bangladesh agriculture sector (2004-5)
- Technical support to the implementation of the USIOTWS program in India, Indonesia, Sri Lanka, Thailand, & Maldives in the areas of capacity building of national disaster management organizations, national disaster management planning, & building tsunami-resilient communities (2005-7)
- Enhancing community resilience to natural disasters in Vietnam and Cambodia (2005-8)
- Flood forecast technology for disaster preparedness in Bangladesh (2006-9)
- Climate Change Adaptation Targets in Mongolia (2007-8)
- End-to-end Early Warning of Tsunami and other Natural Hazards for Disaster Preparedness and Mitigation in the Indian Ocean and Southeast Asia (2005 onwards)

For more information, visit: <http://www.adpc.net/v2007/Programs/EWS/Default.asp>

## Objectives

The main course objective is to enhance the capacity of participating professionals and institutions, to effectively develop skills in process design of multi-hazard end-to-end early warning systems, and mitigate the effects of events related to hydro-meteorological and geological phenomena. Upon completion the participants will learn how to:

- undertake risk assessment and design of multi-hazard end-to-end early warning systems for disaster risk reduction
- effectively integrate scientific and technical inputs into early warning dissemination and communication system
- develop strategies to institutionalize early warning systems into the process cycle of disaster risk reduction and development planning, emergency response, and preparedness activities

- develop risk communication strategies & communication technologies.
- interpret and translate scientific information products into user friendly formats and prepare & communicate tailor made early warning information products to elicit response from at risk communities
- design and implement community based early warning systems that are people centered and that can effectively contribute to the risk management process/risk reduction
- evaluate and introduce public education and training programme for the community based early warning systems
- apply emerging new generation climate prediction technologies for anticipating and managing disaster risks associated with climate change & variability

## Training strategy

The course includes theoretical and practical sessions. An interdisciplinary team of experienced practitioners and experts provide a balanced teaching approach and methodologies to the sessions with theory, practical exercises, interactive and participative lectures, group discussions, presentation, classroom exercises, work sheets, case studies and sectoral examples, individual/group assignment and presentations, application of tools, site visit and instructional games.

There is an attendance requirement in this course. Certificate of Completion will be awarded to participants on successful completion of the training program.

## Training Module Contents

### Module 1: Introduction to end-to-end multi-hazard early warning system and management

This introductory module is designed to inform participants on:

- Elements of people-centered early warning systems
- Review of progress: Early warning systems development in recent decades
- Relevance of early warning products to disaster mitigation
- Organization frameworks for end-to-end early warning systems
- Institutional & legal frameworks for implementation & maintenance of early warning systems
- Effectiveness and economic benefits of early warning systems
- Current shortcomings/gaps, and challenges
- Early warning system and emerging new generation climate prediction technologies

### Module 2: Risk identification and assessment

This module will provide a framework for risk assessment process. This module includes:

- Assessment of vulnerability patterns
- Hazard analysis methods and mapping for types of natural disasters
- Understanding patterns, trends and characterization of risk
- Understanding scenario-based deterministic and probabilistic risk assessment methods
- Analytical methods/tools for risk assessment

### Module 3: Hazard detection, monitoring, forecasting and warning

This module will outline the steps involved in the warning formulation process. This module includes:

- Hazard detection, monitoring and forecasting for Tsunami
- Hazard detection, monitoring and forecasting for Tropical Cyclone and associated Storm Surge
- Hazard detection, monitoring and forecasting for Flood/Flash Flood
- Hazard detection, monitoring and forecasting for Landslide
- Hazard detection, monitoring and forecasting of localized extreme weather events (severe thunderstorms, heavy rainfall, heat/cold waves)
- Hazard detection, monitoring and forecasting for Drought

- Emerging new generation forecasting technologies for medium term weather forecasts, seasonal/monthly forecasts, and long range climate prediction
- Role of existing national, regional and international observing networks/technical agencies for monitoring, forecasting and risk communication for early warnings
- Integrating of scientific and technical early warning information in disaster response systems

### Module 4: Early warning dissemination and communication

This module includes:

- Elements of disaster risk communication
- Institutional arrangements for early warning information management.
- Concept of operations
- Dissemination networks and warning communication methods
- Traditional and new communication channels used for early warning purposes
- Benefits and challenges of different communication channels used in early warning
- Remote sensing and GIS-based space technology solutions as an integral part of early warning
- Public communication strategies of early warning communication
- Community connections and last mile issues in an end-to-end early warning system
- 24x7 warning focal point and Emergency Operations Centre systems

### Module 5: Community based early warning systems

This module includes:

- Elements of community based early warning system
- Behavioral responses to warning
- Role of formal and informal institutions in early warning systems
- Developing end user community partnerships and connecting marginalized at risk communities
- Designing and implementing community based warning systems
- Community perceptions and indigenous early warning systems
- Community preparedness and response

### Module 6: Building hazard-ready communities

This section describes communication model and the importance of developing partnerships. Additionally, it outlines the steps towards building hazard-ready communities.

- Element of Hazard-Ready Communities
- Planning for Hazard-Ready Communities
- Hazard-Ready Communities: Certification process

### Module 7: Monitoring and evaluation of early warning system

This module includes:

- Stakeholder analysis tools to determine the role and performance of local institutions
- Assessment of socio-economic benefits for investment and policy advocacy in end-to-end early warning system
- Early warning evaluation tools: Early warning audits and warning chain analysis

### Matching participants needs

Participants will be asked to send details of their early warning and disaster management responsibilities to ADPC as part of the course expression of interest and application process. This information will be utilized by presenters and resource persons prior to and during the course to ensure that course materials and activities are tailored to participants' needs. The training needs will be identified with the help of potential-target group of experts/or kind of institutions/ or types of services.

## Participants

The course is tailored for senior level disaster managers and development workers, including officials of national and provincial governments, extension officers, defense forces, emergency services, staff of training institutes, institutions of public administration, national and international NGOs, IFRC/ICRC, UN agencies and the private sector. Participants who have considerable measure of responsibilities in the area of disaster mitigation, preparedness, response, recovery and disaster management policy will gain the most from the curriculum. Some early warning background is desirable, but not essential.

## Language

Medium of instruction and course materials are in English. It is essential that participants are fully conversant in English.

## Resource persons

ADPC draws upon a range of expertise from within and, through an extensive alumni league comprising of international experienced practitioners and experts from different organizations and government institutions across the world. ADPC has diverse and dedicated EWS technical professionals with expertise in early warning systems ranging from meteorology to social sciences. In-house expertise concentrates on four areas: Geological hazards, Hydro-meteorological hazards, Climatologists and Disaster studies & management.

## Course Fee

The course fee is US\$ 2,500 per participant, which includes the cost of course materials, break refreshments and study visit. Participants will have easy access to internet and email during the entire duration of the course, and computers and printers are provided to participants for easier compliance with course requirements.

Note that the fee covers tuition and materials only. Boarding and lodging, although arranged by ADPC, is to be paid by participants. Travel is to be arranged and paid directly by participants.

## Discounts

ADPC has established arrangement which recognizes the special needs of sponsoring organizations who wish to send large groups to the course. Special considerations may be offered to organizations sending large groups.

## Payment

The fee should be paid in advance by bank transfer to ADPC account or deposited at the time of course registration in cash or cheque payable to the Asian Disaster Preparedness Center.

Kindly confirm your mode of payment in the application form. A deposit of 15 percent is required from individual participants without a sponsoring organization who are planning to make payment at the time of registration. Registration will be made on the first day of the course. The tuition fee deposit should be paid at least three weeks before the training to cover the cancellation fee in case of withdrawal from the course.

## Board and lodging expenses

Food is reasonably priced in Thailand at about US\$ 3-5 per meal. All participants will be accommodated at the AIT Conference Center. The room rate is US\$25-30 per night for single room and US\$15-18 per person for shared accommodation. Participants who prefer to stay in single rooms should inform ADPC in advance.

## Registration

Interested persons can apply directly but preference is given to those nominated by their employer organizations/departments. Application should be made on the ADPC Application Form, downloadable from ADPC website. Applications are accepted electronically or by fax. For applicants being sponsored by an organization, a letter of support from the organization is required.

## Cancellation

If you are unable to attend, a substitute applicant is welcome. Cancellation of attendance should be notified at least three weeks prior to course announcement; in which case, a full refund less 15% of course fee for banking charges and administrative costs will be made. No refunds are available for cancellation within 3 weeks prior to course announcement.

## ADPC and Early Warning System

Established in 1986, ADPC is a leading organization dedicated to disaster reduction in Asia and the Pacific. ADPC works with governments, NGOs and communities in the region to strengthen their capacities in disaster mitigation, preparedness, and response through training, technical assistance, regional program management, information and research. ADPC has two decades of experience in disaster management, facilitating regional cooperation, and building capacities of disaster management institutions, disaster management practitioners, and communities, and a decade of experience in institutionalizing early warning systems for climate hazards at all timescales through climate information applications. In the aftermath of the 2004 Indian Ocean tsunami, ADPC was mandated by governments in the Indian Ocean and Southeast Asia to serve as regional tsunami watch provider and facilitator of the regional multi-hazard early warning system for tsunami and hydro-meteorological hazards.

Since the aftermath of the 2004 Indian Ocean tsunami, ADPC has been mobilizing its technical expertise, resources, research and operational experiences, and extensive institutional ties to respond to the demand to establish a regional multi-hazard early warning system for Indian Ocean and Southeast Asian region. The Ministerial Meeting on Regional Cooperation on Tsunami Early Warning Arrangements in Phuket (2005) recognized the ADPC readiness to serve as a regional center or focal point for a multi-nodal tsunami early warning arrangement in the Indian Ocean and Southeast Asia. ADPC is the facilitator of a system, which now encompasses 25 participating countries, and serves as a regional tsunami watch provider to the member countries. The regional EWS program includes: regional monitoring and evaluation of tsunamigenic seismic activity, tsunami prediction and information communication to participating countries, and regional severe weather forecast research support for a multi-hazard approach; strengthening national capacities in early warning, disaster management planning, risk communication, and emergency response; enhancing local formal and informal community based institution capacities to assess disaster risks, respond to warnings, and undertake local risk reduction; integrate community at risk in designing, planning, managing community based early warning systems; regional exchanges of information, best practices and lessons learned for cross-country learning and to guide replication; research in all aspects and elements of the end-to-end early warning system to improve system performance and recipient response.

## Inquiries

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EWS

Regional Training Course on

# End-to-End Multi-Hazard Early Warning Systems

15-26 September 2008  
Bangkok, Thailand



adpc 20 years  
of reducing disaster risks  
in Asia and the Pacific