

Effective Early Warning to Reduce Disasters: The Need for More Coherent International Action

Executive summary

Disasters arising from natural hazards are a growing global threat affecting tens of millions of people every year, with devastating impacts on vulnerable communities in developing countries and high costs to developed countries. It is internationally well recognised that effective early warning systems* are essential to save lives and protect property, and to secure livelihoods and sustainable development. However, despite quite good knowledge of disasters and early warning methods and some outstanding successes, overall progress over the last decade to build warning systems that truly serve those affected and most at risk has been disappointing.

The Second International Conference on Early Warning (EWC-II), held in Bonn Germany, 16-18 October 2003, together with its preparatory regional consultation meetings, has concluded that a bolder and more systematic approach is needed to overcome this problem. The Conference identified a number of priority areas for action. Key requirements are the motivation of sustained political commitment and the incorporation of early warning as an integral and sustained part of policy and decision-making. It was agreed that a more systematic, coordinated effort is needed, particularly through better international cooperation, partnerships and programme action. The Conference's recommendations provide the starting point for an international programme to support the development of more efficient and effective early warning systems.

** Early warning is used here in a complete "system" sense, encompassing the generation and effective use of advance information on impending risks. It is a key element of overall risk management.*

PART I. BACKGROUND

Disasters and early warning

Every year, disasters affect tens of millions of people, cause economic losses of tens of billions of dollars, and kill tens of thousands of people. The impacts are much greater for the poor, in death rates, shattered livelihoods, starvation, and sometimes disease. The economic impacts of disasters are a serious handicap to the economic development of countries, with losses sometimes equal to several years of national growth gains.

Ominously, disasters have increased significantly over the last three decades, especially those linked to hydro-meteorological events. These comprise the bulk of all disasters and are projected to increase over time due to climate change. But we know that disasters are a result of human vulnerability to hazards, and that rapid increases in human vulnerability are occurring as a result of population growth and migration, development processes, and environmental degradation.

Early warnings that quickly reach those at risk, and that are effectively acted upon, can substantially reduce loss of life and damage to property. This requires an appreciation of all the sources of risk and vulnerability, and the integration of early warning into public policy and community action.

Recognition of early warning by international community

Early warning has repeatedly been identified as an essential element of disaster reduction strategies and action plans at all levels. Many global frameworks recognise early warning as an important element of sustainable development – for example in Agenda 21, the Millennium Development Goals, the follow-up processes to the 2002 World Summit on Sustainable Development, and the 1994 Yokohama World Conference on Natural Disaster Reduction.

The International Conference on Freshwater, Bonn, Germany, December 2001 identified early warning systems as an integral part of water resources development and planning and a priority area for action. The Marrakesh Accords adopted at the seventh session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP7) call for the strengthening and where needed establishment of early warning systems for extreme climate events in an integrated and interdisciplinary manner, in particular in countries most vulnerable to

climate change. Early warning is identified as an important element under the UN Convention to Combat Desertification.

Early warning is a principal component of the International Strategy for Disaster Reduction (ISDR). The 1998 Potsdam International Conference on Early Warning Systems for the Reduction of Natural Disasters (EWC'98) confirmed early warning as a core component of disaster prevention strategies for the 21st century. The current UN General Assembly mandated review of progress on disaster risk reduction since the 1994 Yokohama conference, will include a thematic review of early warning.

PART II. LESSONS AND RECOMMENDATIONS

Overall

The Conference concluded that significant progress has been made since the Potsdam EWC'98, but that a bolder and more systematic approach to early warning was needed – as a global public good – in order to address the growing disaster problem in both developing and developed countries.

Identified needs and constraints

The regional consultations assessed the current needs and constraints in respect to early warning. Many early warning systems are in place and are well proven. The past decade has seen many technical improvements, arising from better understanding of the physical causes of disasters, better tools for forecasting and prediction, including seasonal forecasts, and better monitoring and modelling of disaster related factors, e.g. soil moisture, crop status and river levels. Slower progress is being made in developing comprehensive drought monitoring and mitigation programmes and warning methodologies for geological hazards. Resources are an issue, particularly to maintain adequate observation networks for hydro-meteorological hazards.

In contrast, progress in the *use* of warnings to achieve effective responses and interventions has been inadequate, particularly at the local level and at the national and community levels in developing countries. Major concerns and constraints include the design of warning messages, community engagement, understanding of appropriate responses, the credibility of warnings, issues of responsibility and authority, as well as inadequate access to warnings by

high risk groups. The regional consultations recognised that meeting these needs at community and national levels was a clear priority.

A welcome achievement in the risk management and early warning fields is the shift from a focus on the monitoring and warning of hazards toward an emphasis on the socio-economic factors of vulnerability. This emerging trend is most advanced for earthquakes and droughts. There is also increasing awareness of the complexity of disasters, in terms of the variety of hazards, natural and technological, and the interactions with health and conflict issues.

Areas of focus and priorities

The Conference agreed that the development of effective early warning by countries and communities required a significant increase in coordinated support and action. It recognised the need to more clearly define the priority needs and actions and to ensure continued international leadership and coordination, preferably to be achieved through the UN.

Five key areas of focus for international programme action were identified by the Conference and its preparatory regional consultations, and specific proposals were developed for each area of focus. These provide the basis for conference's views and recommendations of the priority elements for an international programme of early warning.

Area of focus 1: Better integration of early warning (and related disaster risk reduction and management) into development processes and public policies

This includes support for the efforts of policymakers and decision makers at all levels, in particular those aimed at:

- Motivating long-term political commitment, particularly through the demonstration of benefit/cost relationships and other value assessments of early warning services.
- Developing legislation and institutional frameworks with defined roles and responsibilities and sustainable budgets.
- Integrating early warning into policies on disaster management and humanitarian assistance.
- Training officials at all levels.
- Seeking better linking of early warning in national economic planning such as debt management and investment in structural measures of disaster risk reduction.

- Identifying needs and approaches in respect to new and complex types of hazards, and building linkages with health and ecology groups and their early warning activities.
- Identifying institutional and individual role models and those who can “champion” early warning.
- Stimulating public/private partnerships to leverage public inputs, and to develop linkages with financial risk management.
- Developing, testing and implementing benchmarks and targets for early warning system performance.
- Strengthening the role of early warning in national development frameworks, national platforms for disaster risk reduction, regional coordinating mechanisms, and international networks.
- Promotion of early warning in important international forums and programmes, e.g. those concerned with the conventions on climate change and combating desertification, the Commission for Sustainable Development’s follow up of the World Summit on Sustainable Development, and humanitarian relief.

Area of focus 2: Improved data availability for investigating, forecasting/predicting and managing risks on different time scales

This involves actions of mainly technical character, particularly:

- Securing basic hazard monitoring and data infrastructure, particularly for hydro-meteorological networks and facilities.
- Improving the sustainability of equipment through international collaboration on more appropriate system design choices.
- Developing and disseminating systematic assessments and maps of hazards, risks and vulnerabilities.
- Making better use of satellite data and spatial data methodologies, and engaging with global initiatives on these technologies.
- Improving the quality of warnings (accuracy, timeliness, relevance).
- Standardizing early warning concepts, terminologies, databases, maps, and information management.
- Developing mechanisms and networks for freely exchanging information and experience among stakeholders and disciplines and enhancing trans-boundary cooperation and data exchange.

- Developing improved information on emerging threats and risk scenarios.

Area of focus 3: Improved capacities and strengthened early warning systems, particularly in developing countries

This includes capacity building in all countries to fill gaps in skills and technical facilities, such as through:

- Systematic assessment of capacity needs, including compilation of inventories of early warning systems, covering institutional and social factors, system performance, research, and supporting mechanisms.
- Conducting self-assessments of early warning systems, their resource bases, and roles.
- Training people involved in early warning, risk management, and related policy.
- Exchange of early warning knowledge.
- Developing education curricula.
- Engaging private sector networks, especially those concerned with insurance, finance, risk assessment and risk reduction.
- Assisting in the design and provision of warning systems for developing countries.
- Development of user-oriented locally relevant techniques for early warning, including risk assessments, warning dissemination and response methods.
- Building the capacities of relevant national scientific institutions, including social and economic expertise.

Area of focus 4: Development of people-centred warning systems

This focus area identifies steps needed to make early warning systems much more effective for those at risk. These include:

- Developing community-focused early warning and disaster risk reduction programmes, using participatory approaches to both design and implementation.
- Making the needs of those at risk the explicit focus of warning services, recognising the diversity (age, gender, disability, education, etc) of those affected, and fostering linkages with end-users.
- Identifying gender-relevant information, guidelines, and policies in early warning systems.
- Accessing and using local wisdom and traditional knowledge relevant to early warning.

- Promoting specific engagement of civil society actors in the warning system.
- Institutionalization of local civil protection units to sustain activities at local levels.
- Development and dissemination of practical response methods for those at risk.
- Broaden the audience and improve public awareness and knowledge through advocacy, publicity, and education.
- Developing guidelines and indicators for achieving people-centred warning services.

Area of focus 5: *Mechanisms for sustaining the early warning dialogue and supporting the development and implementation of a programme*

This focus area calls for actions to strengthen the role and capacities of the UN to support early warning stakeholder needs, particularly the following:

- Supporting the development of international strategies and networking to advance early warning, with emphasis on specific priorities, targets, roles and financial support.
- Promoting early warning and its integration into policies in key international forums and programmes, including the Second World Disaster Reduction Conference planned for 2005.
- Seeking the integration of other strategic frameworks, such as the UNCCD Thematic Programme Framework Network for Early Warning Systems, into the ISDR.
- Stimulating innovation on early warning in areas such as: specific benchmarks, targets and operational protocols; improved data on disasters and early warning; economic valuation of disasters and early warning investments; and supporting partners and networks with information resources.
- Supporting the improvement of early warning capacities, especially in vulnerable countries, through projects to develop, demonstrate and test early warning methodologies, including benchmarking, and to evaluate benefits.

An early warning programme and international platform

The Conference agreed that an internationally coordinated programme approach to early warning was needed, along with a supporting platform (organizational capacity) to advance it. The programme and platform should be integral contributing parts of the international community's

strategy for disaster reduction – i.e. of the ISDR. The platform was seen as the means to stimulate, broker and coordinate widespread efforts in support of improved early warning.

The programme should be structured to encourage and facilitate an expanded dialogue among UN agencies, international organizations, academic institutions, non-governmental organizations, and private sector actors, as well as between these entities and their counterparts at regional, national, and local community level. This will require a great deal of network development.

The dialogue should aim to enhance early warning linkages and cooperation between the humanitarian and development communities. It should strengthen existing centres for disaster reduction and early warning.

An important outcome of the dialogue will need to be the progressive enhancement of the programme strategy and associated work plans.

The programme should also provide leadership on promoting the development of tools and techniques for improving and evaluating the efficiency and effectiveness of all parts of the early warning system. This could include stimulating methodology development such as on benchmarks, curricula, technical innovation, economic valuation, standardization, research agendas, and international standard reporting of early warning capabilities and progress. It should also include the development of specialized types of information needed by the early warning community.

It needs to be emphasized that such a programme will be “owned” and shaped by many partners and supporters and that its goals will be largely achieved through the ongoing work of the stakeholders. This is the same way that the existing ISDR goals are achieved.

Lastly, additional resources of a substantial and long-term character will be needed to achieve the significant leap in progress intended under the programme and for establishing the supporting platform. The Conference welcomed Germany's offer to assist in the support of the proposed programme and platform, and encouraged other governments to also support it as appropriate.

Note: A draft of this document was distributed at the Conference and was discussed in open session on 18 October. Suggestions and comments made at that time and in a following two-week review period have been accommodated in this final version of 12 November 2003. For more information visit the conference website www.ewc2.org or the ISDR website www.unisdr.org