



Deutsches Komitee für Katastrophenvorsorge e.V. (DKKV)
German Committee for Disaster Reduction
within the International Strategy for Disaster Reduction (ISDR)

Early Warning and Sustainable Development

Input paper prepared in the context of WSSD and on-going work on early warning

This input paper is based on the discussions of an Expert Meeting on Early Warning and Sustainable Development held in Bonn, 11-12 March 2002, under the auspices of the German Committee for Disaster Reduction (DKKV), within the framework of the International Strategy for Disaster Reduction (ISDR).

The objective of this input paper is to highlight the importance of early warning activities in the context of sustainable development and the preparatory process leading to the World Summit on Sustainable Development (WSSD). It also makes recommendations for a course of action to fill in some of the gaps identified in present early warning activities.

It builds upon the PrepCom II Chairman's paper which describes specific actions required in the field of early warning (see A/CONF.199/PC/L.1). Thereby implicitly endorsing the fact that disaster reduction, of which early warning is one crucial component, is an important requisite for sustainable development to be included in the follow-up to Agenda 21.

Foreword

1. An Expert Meeting on Early Warning and Sustainable Development was held in Bonn, 11-12 March 2002 under the auspices of the German Committee for Disaster Reduction (DKKV), within the framework of the ISDR. The purpose of the meeting was to translate what is needed from the on-going early warning process into concrete recommendations for action, with the ultimate objective to bring people closer to well being through sustained development. Discussions aimed at defining attainable targets, a realistic time frame, appropriate means, dedicated partners and existing frameworks to support their implementation. The momentum for a concerted and coordinated approach to improve early warning into the 21st century will be kept if modalities to implement the action plans and strategies resulting from the work carried out during the past decade, are defined.
2. A background paper commissioned by DKKV and based on the conclusions, guidelines, recommendations, strategies and plans of action produced during the International Decade for Natural Disaster Reduction (IDNDR), served as a guide for the elaboration of recommendations for action to feed into the WSSD preparatory process and beyond. The discussions during the expert meeting were structured around three themes developed in the paper, namely policy issues, technical issues and regional processes/community participation. Three working groups identified some of the most pressing issues to be dealt with, and suggested a course of action, taking into consideration major events foreseen in the next 5 years.
3. The seventeen participants from Africa, North America and Europe included representatives of three organisations of the United Nations (ISDR, UNEP, UNCCD) as well as major scientific and operational institutions (IHDP, GTZ, University of Bonn), the IGAD Drought Monitoring Center (DMC) and representatives of the UK and the French National Committees on disaster reduction . They provided concrete elements to build on and continue the early warning process in order to improve the effectiveness of early warning systems. This on-going process involves a large component of sharing and understanding that started during IDNDR (marked by several major events such as the Potsdam Early Warning Conference), at which time the sustainable development agenda was also being worked on (Rio Conference and subsequent implementation process of Agenda 21).

The background

- a) How can early warning be described?
4. Disaster reduction is aimed at motivating societies at risk to become engaged in the conscious management of risk and reduction of vulnerability. Timely and effective warnings and their wide dissemination are a basis to creating a safer world in the 21st century.
5. Determining the need to warn, even issuing an accurate and timely warning, is not the end goal of an early warning system. The ultimate goal is to save lives and property. The objective of the warning process is to provide information to individuals at risk so they can make informed decisions and take action in order to avoid, or at a minimum reduce their risk. The process of effective early warning of natural disasters (i.e. hurricane/typhoon, tsunami, floods, volcanic eruption, earthquakes, wildfire, drought etc.) includes identifying the hazard, assessing its risk and especially identifying those populations vulnerable to the hazard, and communicating warnings so that communities are informed and sufficiently aware of the potential impacts that they effectively prepare for and responsibly react when anticipated event arrives. Therefore early warning needs to become part of a management information system for decision-making in the context of national institutional frameworks for disaster management. An effective warning system is an element of

international, national and local strategies and programs for disaster risk reduction, supported by appropriate legislation and linked to political/institutional focal points.

6. In order to transform hazard warning information into effective risk reduction at the national and local level, the early warning chain must be made of three inter-linked segments:

- A forecast and prediction segment: which forecasts (in a probabilistic sense) or predicts (in a deterministic sense) impending extreme events, on the basis of scientific knowledge and monitoring results. Depending on the type of event, the performance of this segment varies.
- A warning segment: which transmits information from the first segment together with information on the possible impacts on people and infrastructure (i.e. vulnerability assessment) to the authorities and threatened population. The information should include appropriate response-oriented recommendations. This segment has a technical aspect (timeliness of warnings), as well as a social and political aspect (decision-making).
- A reaction segment: which ensures that the information is correctly understood by the population at risk and local authorities, and that subsequent protective measures are taken. Organisational and administrative problems as well as risk perception in the decision-making process are key elements of this segment, as well as links into national and local disaster management schemes.

b) Early warning in the context of the sustainable development agenda

7. Many chapters in Agenda 21 implicitly mention disaster reduction. The implementation process of Agenda 21 touched upon the importance given to early warning in the context of sustainable development, and concluded that further policies and measures including early warning systems are needed to mitigate the impact of natural disasters, especially in developing countries*. The PrepCom II chairman's paper contains specific recommendations for action concerning early warning*. Any improvement in early warning systems directly contributes to the process of achieving sustainable development and cannot be separated from it.

c) Early warning in the context of the disaster reduction agenda (IDNDR/ISDR)

8. One of the targets to be attained by all countries by 2000 as set out at the start of IDNDR was the ready access to global, regional, national and local warning systems and broad dissemination of warnings. During the Decade, a series of milestone events and products have highlighted the on-going work to improve early warning capacities, and its crucial importance in disaster reduction and preparedness strategies. However many recommendations out of the specific programmes still need to be implemented.

- Two major conferences took place, namely the 1994 Yokohama World Conference on Natural Disaster Reduction and the 1998 Potsdam Conference on Early Warning Systems for the Reduction of Natural Disasters. An Early Warning Programme Action Plan for the Future was presented at the 1999 IDNDR Programme Forum, closing event of the Decade.
- The Flagship Programme of the United Kingdom, on-going work at the regional level and in the framework of the Programme of Action for the Sustainable Development of Small Island Developing States significantly contributed to the development of early warning systems and capacities during the Decade.

* See E/CN.17/2002/PC.2/7, 19 December 2001

* See A/CONF.199/PC/L.1, 12 February 2002, para 8

9. Both the IDNDR and Agenda 21 addressed the need to bring closer the issues of development, disaster reduction and early warning. Activities in the 21st century need to capitalize on the extensive research and development that has already been achieved as well as on the cross-fertilization of ideas and experts of each disciplines.

Recommendations for action

10. The following needs and suggested course of action build upon the actions required on early warning described in the PrepCom II chairman's paper. They stress the need to specify and expand early warning activities as well as for a clear political commitment to support their implementation.

The recommendations in the PrepCom II chairman's paper are :

- " (a) Promote regional strategies containing medium and long-term actions and early warning systems to mitigate the impacts deriving from the El Niño/La Niña and other cyclical weather phenomena and hydrological risks;
- (b) Provide funding and technological assistance to assist vulnerable countries in mitigating the impact of climate change, establishing early warning systems and rehabilitating communities following disasters, in synergy with the objectives of the International Strategy for Disaster Reduction;
- (c) Establish a global early warning mechanism as the nucleus for a global early warning network, which should be integrated with national, regional and international mechanisms;
- (d) Promote pre-disaster preparedness, mitigation, vulnerability assessment and reduction, adaptation strategies and national capacities, as well as other measures to reduce human and economic losses;
- (e) Encourage international joint observation and research and the dissemination of scientific knowledge for effective disaster mitigation and risk reduction;
- (f) Encourage dissemination and use of traditional and indigenous knowledge to mitigate the impact of disasters. "

11. *Specific needs identified:*

- (1) Better inter-linkages to ensure dialogue among all stakeholders at the international, regional, national and local levels.
 - Unrestricted and affordable access to all relevant information on early warning for all users
 - Coordination and cooperation to integrate activities, interests and expertise of the various groups involved in the early warning process, organize information and technology exchange, train users to find and utilise appropriate early warning products, strengthen institutions at all levels and build capacity
 - Generation of integrated information systems ensuring community participation in national early warning strategies
 - Promotion of convergence and coherence in early warning activities in the context of sustainable development
 - Promotion of regional strategies containing medium and long term actions and early warning systems related to cyclical weather phenomena and other hydrological risks.

- (2) Rethinking of early warning technology development from a supply-oriented to a demand-oriented strategy. The user should be more involved in technology design.
- (3) Carrying out of vulnerability and risk assessments at the regional, national and local levels.
- (4) Thorough inventory and review/analysis of existing initiatives and programmes including community-based and traditional early warning systems, aimed at clarifying various contributions in the early warning process] and drawing lessons to improve the effectiveness of early warning systems.
- (5) Development of indicators/criteria to evaluate the effectiveness of early warning systems, including technology transfer and use of appropriate technology.
- (6) Capacity building and educational programmes for each segment of the early warning chain as well as between the segments, to be envisaged in a long term perspective. The possibility to launch a comprehensive inter-agency capacity building initiative based on the results of the inventory and on-going activities should be explored.

12. *Suggested course of action to fulfil the above needs:*

Develop a global programme on early warning . The purpose of the programme would be to strengthen and link existing early warning systems and disaster risk management strategies through policy recommendations, international and regional conferences, capacity building at national and local level and the development of pilot projects.. This activity would be carried out within the framework of the International Strategy for Disaster Reduction (ISDR) and other relevant strategies or frameworks. Major areas of work the programme should promote include:

- unrestricted and affordable access to information for early warning purposes for all users
- vulnerability/risk assessments and mapping at the regional, national and local levels based on standardized methodologies
- risk mapping methodologies
- glossary of commonly used terms
- treatment of uncertainty for decision-making purposes
- guidelines to design effective early warning systems: end-user oriented approach, clear definition of functions in the early warning chain, provision of multi-purpose information, feedback process, effectiveness indicators
- translation of available data (particularly from global observing systems) into timely and useful products for decision-makers and specific applications
- standards for data exchange
- assessment of technological needs/coping strategies at the community level
- networking and sharing of data, information and experience (lessons learnt), coordination and cooperation of early warning activities
- inventory/review of capacities and activities
- capacity building, education, awareness programmes, involvement of women
- synergies with conventions on biodiversity, desertification and climate change
- pilot projects

An important dimension of the early warning programme described above would be the development of an early warning platform/forum, under the auspices of the United Nations

which would facilitate the dialogue between stakeholders and support the exchange of experiences and information on early warning, at the international, regional, national and local levels. The operational modalities for the platform/forum would be developed through a wide consultation to be carried out in 2002-2003, and the results presented to the Early Warning Conference II.

The global programme on early warning and the international early warning platform/forum should trigger the establishment of national and sub-regional early warning platforms/forum to strengthen networking and capacities among the actors involved in the early warning chain.

13. The major partners for the above activities include: local communities, national, regional and international institutions, development banks, World Bank, ISDR (Secretariat and Inter-Agency Task Force) and all other relevant UN agencies (e.g. WMO, UNEP, UNDP, FAO, UNESCO, UNITAR), Convention secretariats (biodiversity, climate change, desertification), European Union, bilateral donors, scientific community, NGOs and the private sector.