

## Integrating Early Warning into Disaster Risk Reduction Policies<sup>1</sup>

The elements for integrating early warning into disaster risk reduction policies specifically address public authorities and should be seen as a tool to support the successful application of the existing **Guiding Principles for Effective Early Warning** ([www.unisdr.org](http://www.unisdr.org)) produced during the International Decade for Natural Disaster Reduction (IDNDR, 1990-1999).

Good governance, or the proper management of public affairs, includes the protection of the public from disasters through the implementation of disaster risk reduction policies. Although natural disasters, by definition, cannot be prevented, their human, socio-economic and environmental impacts can and should be minimized through appropriate measures, including early warning and preparedness. Policy and decision makers at the highest levels (going back to ancient Egypt's pharaohs) have long been expected to plan for unpredictable but unavoidable crises. Many disaster risk reduction measures require ongoing attention. While a strong focus is often given to these problems, during or in the immediate aftermath of a disaster, policy makers need to support legislation, administration, contingency planning and operational procedures including inter-ministerial/inter-agency relationships, on a permanent basis, in order to effectively reduce the growing vulnerability of communities and assets. (insert Box 2)

Governments are fully expected (both by their constituent populations and neighbouring nations) to reduce the exposure of people and assets to the effects of disasters. Below you will find some suggestions, based on examples and best practices world-wide, of elements that should be taken into account to effectively integrate monitoring, early warning and response systems, into disaster risk reduction policies and plans of actions in support of sustainable development.

Public policy for disaster reduction starts with **political commitment and high (cabinet) level authority** for the coordination of various national agencies, and ultimate decision-making. It also depends, however, on authorities and institutions at all other levels and in particular at the **local level** for the first and, often most critical, immediate response to a disaster.

Early Warning for disaster reduction is a legitimate matter of public policy at the highest national levels for two main reasons:

- The first one, clearly, is **public safety, and the protection of human lives**. In the 1970s, natural disasters alone claimed nearly 2 million lives. By the 1990s, even though the occurrence of disasters was greater, fatalities had fallen to under 800,000. This shows that it is possible to reduce the loss of life, although the total number of people affected by disasters did increase markedly.

- The second is the **protection of the nation's resource base and productive assets** (infrastructure and private property or investments) to ensure long-term development and economic growth. Conversely, by reducing the impact of disasters, a government avoids the financial –and political- burden of massive rehabilitation costs. Again, during the 1990s, direct economic losses reached an estimated US \$629 billion<sup>2</sup>

Investing in early warning and other measures of disaster reduction is neither simple nor inexpensive, but the benefits of doing so, and the costs of failing to, are considerable. For instance:

- In terms of reducing economic losses, early warning and disaster preparedness 'pay for themselves' many times over the life of the warning system.
- The reduction of environmental losses can, if properly managed and publicized, have both long-term benefits to the economy, and short-term benefits for the administration in-charge.
- A country can strengthen its stature and influence in international relations by a good handling of 'externalities', or indirect effects, on neighbouring nations, and by taking a leading role in the management of common waterways. Coordinated management, including disaster reduction by thirteen nations sharing the Danube river, or by countries along the Mekong, are good examples.

From a public policy viewpoint, early warning, disaster preparedness and prevention must be part of a single, well integrated process. The decision to act upon receipt of warning information is political in character. Normally, action resulting from warnings should be based on previously established disaster management procedures of organizations at national and local level.

Key elements for successful implementation:



**Understand the most likely threats, likelihood of disasters and their potential consequences.** Although natural disasters are not precisely predictable, they are most often generally foreseeable. In other words, there are many areas where the occurrence of floods is likely; one does not necessarily know exactly when, but one knows they will occur sooner or later. Many natural hazards can be foreseen, or anticipated, from past experience, the analysis of current patterns of land use, or population distribution.

Policy decisions should be based on a sound assessment of risk. Two elements are essential in the formulation of risk: the probability of occurrence for a given threat – **hazard**; and the degree of susceptibility of the element exposed to that source – **vulnerability**. The negative impact, or the disaster, will depend on the characteristics, probability and intensity of the hazard, as well as the susceptibility of the exposed elements (both people and assets based on physical, social, economic and environmental conditions).

While considerable advance has been made in forecasting and monitoring, the

<sup>1</sup> Paper prepared by FAO/GIEWS for the Second International Conference on Early Warning, 16-18 October 2003, Bonn, Germany.

<sup>2</sup> 2002 World Disasters Report, International Federation of Red Cross and Red Crescent Societies.

accompanying vulnerability and risk information is often missing. Policy makers should promote the assessment of hazards and vulnerabilities, generate risk scenarios and risk maps, based on standardized methodologies.

Information provided by the risk assessment will support a number of key elements of any disaster reduction policy and in particular the effective application of early warning systems.



**Establish proper priorities.** To allocate scarce resources most wisely, decision makers must rely on the type of analysis above, and make the disaster management choices which have the highest ‘value’, in terms of losses avoided. One common approach is to use the expected value criteria; that is, the likelihood of an event multiplied by the potential cost of this event if it occurred. Simply stated, it is a matter of giving priority to the ‘worst-most likely’ over the ‘most benign-least likely’ events. More sophisticated priority criteria can also reflect the extent to which early warning and preparedness can reduce the impact of likely events.



**Developing institutional networks with clear responsibilities.** Understanding the nature of natural hazards and related vulnerabilities, for early warning purposes, requires a combination of actors from several areas, such as science and research (including social sciences and cultural aspects), land use planning, environment, finance, development, education, health, energy, communications, transportation, labour and social security as well as national defence. On the other hand, a prompt and effective response to a disaster, based on early warning, implies that concerted action—managed by a higher authority—be taken by specific types of institutions: civil defence or public safety personnel, power and other utility agencies or companies, public health authorities, etc. at levels ranging from the cabinet minister’s to the community leaders.

Multi-disciplinary research, multi-sector policy and planning, multi-stakeholder participation and networking relevant organizations are fundamental; to address the many dimensions in which early warning and disaster risk reduction efforts are actualised. Benefits that accrue from such connections include improved efficiency and cost-effectiveness, a unified strategic framework for decision making on issues of common concern, lessening duplication of efforts, as well as mandating an appropriate division of responsibilities.

The spectrum of collaboration, processes and activities goes from various ways of sharing information to joint research and integrated databases through to participatory strategic planning and programming. The latter is the more difficult to achieve, but it is also the more effective. Some examples of the ways in which this process is realized are:

- communication networks/forums for dialogue;
- institutional partnerships vis-à-vis memorandums of agreements between agencies and organizations;

- formalized joint mandates, legislation, policies and plans within public authorities;
- multi-sector issue advisory groups;
- multi-disciplinary research projects;
- integrated databases;
- search conferences; and
- other participatory planning processes.



**Establish or strengthen the legislative/legal framework and mechanisms.** Just as for any other aspect of public policy, early warning systems, as well as other disaster reduction applications need to be motivated and based within governmental responsibilities, especially since response to disasters may require exceptional executive powers for a specific period of time but its success cannot be accomplished without the benefits of widespread decision-making and the participation of many others.

While disaster management and response co-ordination can benefit from centralized command there is an increasing recognition of the need to decentralize disaster risk reduction, including early warning system responsibilities. Along with the decentralization of power and devolution of governing authority, disaster risk reduction, at the local community level needs to be encouraged, and supported. The decentralization of responsibility for disaster risk reduction, identification of risk and early warning communication has to be coordinated by municipalities, townships, wards or local communities.



**Developing effective communication strategies.** The context of early warning system communications has two aspects; the hardware aspect relates to the maintenance of lifelines, i.e. the necessity to build or strengthen robust hazard-resistant communication systems; the software aspect relates to the maintenance of relationships, i.e. the need to establish and maintain effective links and working relationships among the actors involved in the early warning communication chain.

Wishing not to appear ‘alarmist’, or to avoid criticism, local and national governments have sometimes kept the public in the dark. The lack of clear and straightforward information, when contrasted with the reality of a disaster, and a profusion of conflicting news or rumours, can only confuse people and undermine their confidence in public officials. Conversely, there are quite a few cases where the public refused to heed early warnings from authorities, and exposed themselves to danger or forced governments to impose removal measures. In any case, clear and balanced information is critical, even when some level of uncertainty remains.



**Securing resources.** A substantial amount of resources is needed to ensure monitoring, adequate early warning, concerted disaster reduction, and a return to normal life. To a great extent, the capacity to secure resources to do this—versus undertaking a competing public program—depends on the quality and

credibility of the overall system: understanding threats, clear priority setting and institutional networks, and appropriate legislative dialogue. Human resources are also essential. Capacities and competences in administrations, in particular at local levels, requires ongoing support.

*" More effective prevention strategies would save not only tens of billions of dollars, but save tens of thousands of lives. Funds currently spent on intervention and relief could be devoted to enhancing equitable and sustainable development instead, which would further reduce the risk for war and disaster. Building a culture of prevention is not easy. While the costs of prevention have to be paid in the present, its benefits lie in a distant future. Moreover, the benefits are not tangible; they are the disasters that did NOT happen. "*

**Kofi Annan, "Facing the Humanitarian Challenge:  
Towards a Culture of Prevention", UNGA, A/54/1**

More information on early warning and disaster reduction is available from the UN Inter-Agency Secretariat of the International Strategy for Disaster Reduction –  
Web site: [www.unisdr.org](http://www.unisdr.org)