

# Disaster management: a method of easy survival

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## Abstract

Sir

Promoting sustainable development is among the top priorities for every government. It is seen as one of the most crucial factors in advancing governance, economic prosperity and, ultimately, enhancing quality-of-life for citizens, including improved health services, justice, education, and wealth. While the debate over how to achieve sustainable development brings out opinions that vary immensely from one observer to the next, a consensus is usually reached when the discussion turns to the actions required for non-politicized and non-polarizing topics, such as disaster events. Everyone agrees that reducing the impacts of natural and manmade disasters is essential, and that planning, preparation, response, recovery and ever-improved resilience are necessary.

Long-term development is often disrupted and derailed by unforeseen shock events. Many of these shocks come in the form of natural or manmade disasters, which can put enormous stresses on social and political systems. Unfortunately, recent studies suggest that the impacts from disasters will continue to increase, largely due to population growth and rapid urbanization.

Today, disasters are widely recognized as among the most disruptive forces impeding sustainable development, especially in developing nations, where disasters divert much-needed and scarce resources away from the strategic infrastructure development and toward tactical response and recovery. Disasters do not just threaten safety and economic prosperity. They often also stretch social cohesion and political order to the breaking point. Appropriate safeguards against these negative effects are needed, including promotion of national disaster management strategies, enhancement of associated capacities, and implementation of sound disaster management practices. The establishment and

maintenance of these elements and the practices they imply are prerequisite to a successful, national, sustainable-development platform.

Addressing these issues demands a multi-dimensional approach to sustainable development and the creation of opportunities for increased national capacities to pro-actively identify and balance the disruptive forces of shocks. In other words, reducing disaster risks and impacts allows policy makers to better balance social progress, economic growth, and environmental protection as an overall strategy, and thereby, leads to increased opportunities for long-term enhancement of national capacities.

To date, however, the greatest emphasis of disaster management continues to be placed on response and recovery activities, while little attention is given to proactive measures that would reduce risk and prepare people, communities and economies to better withstand and survive disasters. In recent memory, for instance, the Indian Ocean Tsunami of December 2004 demonstrated the human cost of not having an early warning platform in place. Similarly, Hurricane Katrina in the United States Gulf Coast demonstrated the high price to be paid for not having a proper understanding of risks or effective plans to counter those risks.

Of course, nothing could have stopped the destructive tsunami waves or prevented the fury of the storm, but an untold number of lives could have been saved if an effective disaster early warning system had been in place to alert Indian Ocean coastal populations, or if steps had been taken to strengthen the levies and other defenses of the Gulf Coast over time. In both cases, the investments would have been well worthwhile. Lives and property would have been saved, which is exactly what proactive disaster management is all about.

The currently evolving approach to emergency management shifts the emphasis from being reactive, focusing on response and recovery operations, to being proactive, with the focus on mitigation and preparedness. This strategy is built on the United Nations approach to risk reduction that acknowledges public awareness and community partnerships, better assessments of natural hazard risks, and preventative action priorities as critical components that minimize identified risks. The overall goal is to promote disaster management as an integral part of national-to-local economic and social development.

For more than a decade before the horrific mega-disasters mentioned above, Pacific Disaster Center (PDC) had been working on reducing risks and lessening the impacts of disasters through the use of science and technology. Located in Hawaii, the Center takes an integrated approach to disaster management including the development of advanced system architectures and of site-specific operational platforms for multi-hazard early warning and decision support systems. This approach also incorporates various risk and vulnerability assessment methodologies that can guide pre-disaster mitigation planning. These tools and measures have been used and field tested for years in Hawaii and around the globe.

Early on, PDC recognized the importance of the four main phases of disaster management—namely, Response, Recovery, Mitigation, and Preparedness—as keys to an overall disaster risk reduction strategy. To give every phase its appropriate value, the Center has consistently invested in applied research and technologies to enhance overall disaster management practices in all areas. Additionally, recognizing the importance of policy and political support for effective disaster management, PDC has worked to establish relationships with institutions involved in disaster management and capacity building at all levels.

As an example, shortly after the Indian Ocean Tsunami, PDC formed a partnership with the National Disaster Warning Center (NDWC), Thailand, to enhance that nation's disaster management capabilities. PDC not only deployed a decision support system for multi-hazard early warning, but also worked diligently with NDWC and other national institutions to define the concepts of operations and to identify gaps in disaster management practices, available resources, and reduction measures. As a result, Thailand benefited tremendously, and now has enhanced capabilities to prepare for and respond to subsequent tsunami threats. In fact, the success of the program and of the PDC approach

has now prompted hopes for enhancing the system, known as Disaster All-hazard Warning Analysis and Risk Evaluation—DisasterAWARE—to include flood hazard in Thailand. A similar program is also under development for Vietnam.

What is different about DisasterAWARE is that it seamlessly integrates early warnings from various institutions, hazard data, risk information, hazard modeling, and many different innovative technologies into one system easily used by the decision makers. In other words, the system is made to provide timely information and the latest assessments to the disaster managers when it matters most, and to present the data in a form that can be instantly understood and acted upon.

Yet, a system by itself cannot improve disaster management practices. Therefore, PDC works closely with its constituents to proactively identify, analyze, and assess risks and vulnerabilities and to train professionals and staff members in the applications customized for their nation or region.

Under this program, historical disaster information is gathered and analyzed to assess losses. Often, sophisticated hazard modeling is also used in conjunction with current analyses to estimate or project damages to the existing infrastructure, people and properties.

Finally, various indicators and methodologies are employed to project socio-economic vulnerabilities and local capacities. The result is then used to identify and prioritize mitigation activities that may be employed to lessen the impacts of future disasters. This approach not only works well to develop national and regional strategies for dealing with disasters, but also holds the promise of protecting economic assets for businesses and citizens alike.

Risk assessment and early warning platforms, developed together and fully integrated, become an effective means of combating the destructive forces of disasters by encouraging and facilitating proactive disaster risk reduction. To this end, PDC hopes to “foster disaster-resilient communities, through science, information, and technology,” and ultimately, the Center makes a difference in sustainable development for all nations.

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