Building Capacity for Earthquake Monitoring: Linking Global Seismic Networks with Regional and National Deployments

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The world focuses on emergency relief in the aftermath a major natural disaster, but attention often fades quickly or is distracted by other news. We expect a "teachable moment", when support will be available for efforts to mitigate the impact of the next similar event, but the moment is likely to be most fleeting. Unless we are prepared, mitigation efforts will be hastily organized and may accomplish less than we hope. In retrospect, despite an energetic response, we could very well see a lost opportunity.

Installing or upgrading a seismic monitoring network is often among the mitigation efforts after earthquake disasters, and this is happening in response to the events both in the Sumatra during December 2005 and in Pakistan during October 2006. Seismologists know the benefits that these networks can yield improved hazard assessment, more resilient buildings where they are most needed, and emergency relief directed more quickly to the worst hit areas after the next large earthquake. Several commercial organizations are well prepared for the brief opportunity to provide the instrumentation that comprises a seismic network, including sensors, data loggers, telemetry stations, and the computers and software required for the network center.

But seismologists also know that seismic monitoring requires more than hardware and software, no matter how advanced. We know that a well-trained staff is required to select appropriate and mutually compatible components, install and maintain telemetered stations, manage and archive data, and perform the analyses that actually yield the intended benefits. We also know that monitoring is more effective when network operators cooperate with a larger community through free and open exchange of data, sharing information about working practices, and international collaboration in research.

As an academic consortium, a facility operator and a founding member of the International Federation of Digital Seismographic Networks, IRIS has access to a broad range of expertise with the skills that are required to help design, install, and operate a seismic network and earthquake analysis center, and stimulate the core training for the professional teams required to establish and maintain these facilities. To deliver expertise quickly when and where it is unexpectedly in demand, however, requires advance planning and coordination in order to respond to the needs of organizations that are building a seismic network, either with tight time constraints imposed by the budget cycles of aid agencies following a disastrous earthquake, or as part of more informed national programs for hazard assessment and mitigation.