

Sri Lanka better prepared for future tsunamis

June 20 2014, by Stephen Dale

Vulnerable coastal communities in Sri Lanka now have more tools to help them survive tsunamis, cyclones, and other rapid-onset natural disasters. This increased preparedness flows from IDRC-supported research that evaluated the best means of alerting communities to approaching danger.

The project was a response to the 2004 Indian Ocean tsunami, blamed for 230,000 deaths, 40,000 in Sri Lanka alone. Following the devastation, many international agencies sought to increase the effectiveness of national warning systems.

But IDRC took a different approach. It worked with LIRNEasia, a Sri Lankan organization that tackles communications technology issues, to focus on "the last mile." In other words, researchers looked for ways to strengthen the link between central authorities and the communities that lay in disaster's path.

"Many lives would have been saved in 2004 if they had been able to deal with the last mile," explains IDRC project officer Laurent Elder. "That's where the system broke down. Government had enough time to issue a warning, but it didn't reach the people who needed to hear it."

Real-life drills

To fortify that vital link, LIRNEasia partnered with Sarvodaya, Sri

Lanka's biggest non-governmental social service organization. Together, they sought to involve coastal communities in testing last-mile warning systems.

Sarvodaya set up an information hub near the capital, Colombo, capable of sending bulletins to remote communities. "Guardians" there would be ready to receive the information. Community emergency committees were also trained to maintain the equipment and mobilize residents for evacuation if a warning came.

Citizens took part in testing five different technical systems designed to relay information from the [information hub](#). Running drills in real-life situations brought to light technical glitches and examples of human error that would not otherwise have been apparent.

LIRNEasia Chair and CEO Rohan Samarajiva recalls that addressable satellite radio emerged as the most reliable system. Unfortunately, the bankruptcy of the only satellite radio company in Asia put that solution out of reach.

The next best option, Samarajiva says, was to use cell broadcasting to send messages to mobile phones. Cell broadcasting is a means of sending messages from one point to multiple users. It isn't vulnerable to the congestion that plagues the standard text messaging system, SMS, so is more reliable when traffic is high.

Backup systems

LIRNEasia also brought the Common Alerting Protocol (CAP) to Sri Lanka. This software allows messages to be channelled through multiple media so that duplicate messages relayed through other means, such as radio or the Internet, can function as a backup in case mobile phones fail. The first multilingual applications of CAP were developed for the

project.

Today, thousands of communities have emergency committees, and Sri Lanka's mobile networks are fully capable of issuing warnings through cell broadcasting, Samarajiva says. False alarms, where indicators incorrectly predicted tsunamis, have also provided opportunities to troubleshoot and fine-tune the system.

Perhaps more importantly, the research has influenced government and organizations such as Sarvodaya to "shift their thinking from a response perspective to a prevention perspective," Samarajiva says. Some of the lessons from the project have also been applied to research on developing systems to deal with epidemics.

The last-mile effort has moved beyond Sri Lanka, with researchers sharing their findings with disaster experts in Bangladesh, India, Indonesia, and the Maldives. Open-source software tested in the project has also been called into service by emergency response officials in the United States. When Hurricane Sandy hit hard in October 2012, New York City turned to the Sahana disaster [warning system](#) to help manage its response to the storm. The aftermath of the Sandy disaster provided confirmation that taking an open-source approach, and supporting scientists in the South, can lead to applications that also help the North.

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