

Tsunami Researchers Help Rebuild a Community

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On December 26, 2004, one of history's deadliest and most destructive [tsunamis](#) struck 12 countries bordering the Indian Ocean, the result of a massive 9.1 magnitude underwater earthquake off the coast of Indonesia. The ensuing waves traveled across the ocean at over 550 miles per hour — as fast as a jet — to make first landfall within 30 minutes of the quake and reaching as far as East Africa over the next several hours. The tsunami left over 250,000 dead and 2.3 million people homeless.

Studying Survivors

David N. Sattler, of the Western Washington University department of psychology, an expert on reactions to natural disasters, went to Thailand shortly after to study post-traumatic stress disorder (PTSD) and post-traumatic growth.

To support his research, Sattler applied for funding from his department and university, including funding from the Office of Research and Sponsored Programs. Internal funding allowed Sattler to travel within months, as opposed to the year that it could have taken for him to write and be approved for an outside grant.

“One of the strengths of his research is that he was there within three months, talking to these people who had just lost everything,” says Dale Dinnel, chair of the WWU psychology department, who aided Sattler in getting funding.

Once in Thailand, he and his research team visited shelters and other temporary housing. With the help of Sawitri Assanangkorncha, a member of the department of psychiatry at Prince of Songkhla University, the team interviewed over 350 people. Sattler discovered that the survivors were exhibiting signs of PTSD such as sleeplessness and jumpiness. Those they talked to feared that another tsunami would strike, and they were unaware of the new warning system, evacuation procedures, and international relief efforts that were in place.

Sattler explains that fear, one of the reactions associated with PTSD, can threaten one's sense of “control, predictability, safety, and trust.” Although it is normal for survivors of natural disasters to experience symptoms of PTSD, Sattler noted that many tsunami survivors were experiencing complicated grief, which occurs when the period of mourning for a loss lasts longer than usual and daily life is interrupted to an abnormal degree. Sattler describes one interviewee who was the sole survivor of an 18-person family and another who lost 14 friends with whom he had been traveling.

Although the Thai government acted quickly to establish temporary shelters, schools, and retraining programs for those who lost their jobs, recovery was still a slow process. Businesses had been destroyed, and many survivors had no jobs to return to.

“Imagine: You have no insurance and you've just lost your home and your family. You have no job, no way of getting another job, no savings in the bank — you have nothing,” explains Sattler. The tsunami

destroyed the ability of survivors to control their lives, making the lasting effects of the tsunami nearly as problematic as the initial impact.

“One of the main lessons that we’ve learned from psychological research is that it’s very important to establish some type of daily routine, even if you’re living in a shelter, because it helps reestablish feelings of control and predictability,” says Sattler. It’s also necessary to rebuild the individual social support system, something that is crucial for mental health but is often compromised by a natural disaster. When friends and neighbors are either killed or relocated, it is almost impossible for a person to reconstruct that same support system.

Helping While Learning

On his second trip to Thailand, in March 2006, Sattler discovered that people were still fearful of another tsunami and still unaware of the warning system, evacuation procedures, and relief efforts. When interviewees were told about the Indian Ocean Tsunami Warning System and the world-wide relief efforts that had been made, their reactions were dramatic.

“It was like a weight was lifted off of them,” says Sattler. At that point, he decided that a museum would be an excellent way to distribute this information to large numbers of people.

“I decided I was going to do this, no matter what,” says Sattler. He once again turned to Western Washington University and received \$5,000 from the Center for Cross-Cultural Research and \$4,000 from the Dean’s Fund for Excellence, part of the College of Humanities and Social Sciences.

To further aid the project, Dinnel put Sattler in touch with Nimmual Boe, the owner of a Thai restaurant in Washington. Boe helped Sattler contact her brother, Pong Lim, a restaurant owner in Khao Lak, Thailand. Lim proved to be a valuable partner for the researchers in Thailand, helping to establish contacts and donating an empty building space next to his restaurant to house the museum. Khao Lak was an apt location for the museum: The tsunami killed 4,000 people in the town and severely damaged the local economy, which relies heavily on tourism and fishing grounds that were devastated by the giant waves.

Sattler and a research team of five WWU psychology undergraduate students (Kelly Highsmith, Jaime Reeder, Andrea Reinholz, Brittany VanLant, and Kathryn Weinberg) spent from June until November doing background research and writing the exhibits. In December the students traveled to Thailand to renovate the museum space and open the museum. For the students, explains Sattler, it was an opportunity to witness what they had been learning in the classroom about psychological responses to natural disasters and to apply that knowledge in a meaningful project.

Of course Sattler and his team encountered challenges, including getting the exhibits designed, printed, and translated from English into Thai so that information could be presented in both languages. Four students from the University of Washington translated the material and Rochelle Parry, a graphic designer from Western Washington University, arranged the information into the 12’× 4’ exhibits.

Mehnaaz Bagum, a nursing assistant and friend of Sattler, volunteered to go along to help open the museum. As the daughter of a carpenter, she quickly jumped into the project, climbing on top of a ladder to paint the upper halves of the walls. As the group painted, people passing by on the street would

occasionally wander in and inquire about the museum. Bagum recalls early visitors making donations even before the donation box was set up.

Enlightening Exhibits

In only 12 days, a plain, white room was transformed into the International Tsunami Museum, which officially opened its doors to the public on December 21, 2006, a few days short of the two-year anniversary of the tsunami.

The exhibits cover a wide range of topics related to the tsunami. One that visitors have found especially informative is a 4' × 4' map of the Indian Ocean showing the epicenter of the earthquake. The exhibits also describe how earthquakes happen and how tsunamis are triggered. Sattler describes one visitor in his early 50s who stared at the map for over 20 minutes. "I have never seen this before," the man said. "Now I understand what happened to us."

Another exhibit describes the new Indian Ocean Tsunami Warning System, evacuation procedures, and the warning signs of a tsunami. The Indian Ocean Tsunami Warning System, coordinated by the UNESCO Intergovernmental Oceanographic Commission, became functional in July 2006. Along with an improved seismographic network, three Deep-Ocean Assessment and Reporting of Tsunami (DART) sensors have been activated, and 26 Tsunami Centers are collecting and distributing data. The system could provide from 30 minutes to several hours warning that a tsunami is on the way. When Sattler explained the warning system to interviewees and museum guests, they were relieved.

"The new system empowers them; it reestablishes feelings of control," says Sattler. Although excited to learn about the warning signs, some museum visitors still expressed concern over the reliability of the system. "It is important for the warning system to be tested, so that people will have confidence that the system will work when needed," Sattler says.

Visitors also find the information on foreign aid helpful, says Sattler. "People didn't grasp the magnitude of the aid. There just wasn't a central clearing house for this information until we pulled it all together." The exhibits on relief efforts were a large part of Sattler's vision for the overall theme of the museum.

"In showing how the many organizations had rallied to help, I wanted to show hope, optimism, resilience, and the human spirit," he says.

Resource for the Future

Within the first week of the museum's opening, over 3,000 visitors had come to study the exhibits. "In a subtle and ethical way, visitors are introduced to the tragic events of December 26, 2004," noted the Phuket Gazette in a January 2007 article, "Khao Lak Completes its Tsunami Comeback." Among the first to visit the International Tsunami Museum were 85 children from a local elementary school. The teachers handed out a worksheet about the tsunami and the museum, and the children gathered information from the posters and videos with an enthusiasm that was very touching, remembers Sattler. The children were quite taken with the exhibits, especially those describing what caused the tsunami and how it had affected the plant and animal life.

Bagum says that the best part for her was seeing the children visit the museum. "They can then go home

and educate their parents about the tsunami and the museum. They can also come back to the museum to do research for school projects,” she says.

Now open for several months, the International Tsunami Museum has hosted thousands of visitors. Visitors’ donations are given to local schools for food, supplies, building repairs, and staffing.

Sattler plans to remain involved with the project and continue follow-up studies on the impact of the tsunami and the museum.

As Dinnel notes, Sattler has a “lifelong academic history” of researching natural disasters and applying his findings in a positive way. “He is extremely concerned about humanity in general,” said Dinnel. “He wanted to make sure that people would be able to grow positively from this very negative experience.”

For more information on the Tsunami Museum, see
<http://www.ac.wvu.edu/~sattled/tsunamimuseum1.htm>

*An ocean wave produced by a sub-marine earthquake, landslide, or volcanic eruption. These waves may reach enormous dimensions and have sufficient energy to travel across entire oceans.
(weather.gov/glossary/glossary.php)