



LESSONS



FROM



DISASTERS

Almost two years have passed since the Great East Japan Earthquake on March 11, 2011. Japan has experienced numerous disasters in its long history, and following a disaster Japan has improved its *bosai* measures for prevention and mitigation of disasters in areas such as flood control, forest conservation, weather observation and evacuation systems. In the 1940s and 1950s, more than 1,000 lives were lost annually due to natural disasters, but in recent years casualties have fallen to fewer than 100. Even so, the damage brought by the Great East Japan Earthquake was far greater than Japanese could have imagined. Based on the lessons learned from the experience, Japan is now working on new measures for preventing and mitigating disasters in an effort to facilitate reconstruction. This month's Cover Story introduces some of the lessons learned from the country's various disasters.



School students and local residents participate in an evacuation drill in Kamaishi, Iwate Prefecture, in 2009.

At a magnitude of 9.0, the Great East Japan Earthquake triggered a massive tsunami and dealt unprecedented damage to a wide area spanning from the Tohoku to Kanto regions. Kamaishi, a city in Iwate Prefecture with a population of approximately 40,000, was hit by a tsunami that topped over 15 meters. More than 1,000 people were killed or went missing. Nearly 30% of the houses were completely or partially destroyed. Despite the suffering from this level of damage, almost all of the nearly 3,000 elementary and junior high school students successfully evacuated and stayed safe. This amazing fact was acclaimed as the “Miracle of Kamaishi” and drew wide-scale response.

“The children attribute it to ‘Achievements of Kamaishi.’ Their survival is not a miracle considering that they made consistent efforts, did the right things at the right time and obtained the outcome they deserved,” says Toshitaka Katada, a professor at Gunma University. “However, Kamaishi lost five children, so I was somewhat reluctant to use the word ‘miracle.’ I’m now leaning toward placing greater importance on this phrase, the ‘Miracle of Kamaishi,’ to ensure that the children’s actions are

remembered down through the generations.”

Since 2004, Professor Katada has cooperated with local elementary and junior high school teachers in providing disaster prevention education in Kamaishi. Notably, he strongly advised local children to follow three principles of evacuation: do not get fixated on assumptions, do whatever you can do in the given situation, and take the initiative in evacuating.

In Japan, each of the regions that could be hit by a tsunami has a hazard map indicating the areas that would be inundated. Yet the tsunami of the Great East Japan Earthquake inundated a far wider range of areas than those anticipated in the maps. Many people who lived in areas that had not been specified as susceptible to inundation attempted to evacuate too late, because they believed tsunamis would not affect them, and in fact many of the casualties were from such areas. In Kamaishi, children sought refuge all the way to higher ground, and did not stay in the evacuation center that the hazard map said would be safe. And through this action they barely escaped the tsunami. The children did exactly what they could do without fixating on assumptions.

Many survivors in Kamaishi began evacuating after seeing local junior high school students who



Professor Toshitaka Katada teaches disaster prevention through a game at primary schools on the Caribbean island of Saint Vincent (right) and on the Turks and Caicos islands in the Bahamas in 2007.

were running while loudly and vocally informing others before the tsunami reached the land, advising them to evacuate immediately. One older survivor was at first reluctant to evacuate believing that the breakwater would protect him, before the cries of his grandchild impelled them to flee. Many parents averted the tsunami by evacuating without attempting to find their children, believing their children would evacuate by themselves. The children did exactly that, and took the initiative.

Kamaishi's junior high school students were typically encouraged to develop from the saved into the saver. For instance, they received evacuation drills together with elementary schoolchildren and were trained to use two-wheeled carts to carry the elderly. When the Great East Japan Earthquake hit, the junior high school students took the elementary

schoolchildren's hands or carried the elderly on their back to successfully evacuate, as they had been trained to do.

"The children saved the lives of many adults, as well as their own lives," Professor Katada says. "Merely scaring children about tsunamis and teaching evacuation knowledge doesn't get you anywhere. Disaster prevention education must enable children to voluntarily decide to evacuate and to act accordingly when needed."

Professor Katada is also involved in activities to spread disaster prevention education in Latin America. One such activity is the Project on Capacity Development for Disaster Risk Management in Central America, BOSAI, organized by the Japan International Cooperation Agency (JICA). ("Bosai" is a Japanese word meaning disaster prevention and mitigation.) Through workshops with local people, Professor Katada communicates advice for evacuating from tsunamis, erupting volcanoes, heavy rain, landslides and other types of disaster, as well as the importance of handing down experiences of coming through from a disaster.

"People try to forget bitter memories, but these memories must be utilized as lessons," Professor Katada says. "With a vivid memory of the Great East Japan Earthquake, we have the responsibility to ensure, for future generations, that evacuating is a certainty whenever a tsunami occurs. In other words, evacuation must be made a part of our culture." 



Professor Toshitaka Katada explains the tsunami evacuation map to junior high school students in Kamaishi.