

# Developing Resilience



**Satoshi Fujii, professor at the Graduate School of Engineering, Kyoto University, and special advisor to the Cabinet**

As a nation vulnerable to a variety of natural hazards, Japan has been striving to bolster its national resilience on a continual basis. We asked Satoshi Fujii, a professor at the Graduate School of Engineering at Kyoto University who serves as a special advisor to the Cabinet, about Japan's disaster risk reduction policies.

## **How have natural disasters affected the Japanese spirit?**

After the Great East Japan Earthquake occurred, I saw on TV one elderly man being helped out of the rubble in one of the towns devastated by the tsunami. And this man gave a bright smile and said, "We have also experienced the Chile earthquake. Everything will be fine. We can start over again." This town was severely damaged also by the tsunami caused by the Chile earthquake (with a magnitude of 9.5) in 1960. I saw in this old man's words the strength of the Japanese spirit. Japan has repeatedly suffered catastrophic disasters, but each time Japanese have rebuilt the society. Through this long history, I believe the Japanese have developed a resilient fortitude when it comes to disasters.

## **With the Great East Japan Earthquake, what did you think was important in disaster risk reduction?**

Risk communication is one. In disaster risk reduction, risk communication is intended to support careful preparations at normal times and prompt the correct actions and immediate evacuation when a disaster hits. Disaster risk reduction education provided by communities and schools is one risk communication measure. The city of Kamaishi in Iwate Prefecture was hit by the tsunami which followed the Great East Japan Earthquake, but because disaster drills envisaging a tsunami had been performed at schools on a regular basis, almost all of the elementary and junior high school students at school that day were unharmed.

The inherited knowledge of a region also makes a big difference. In one village in Miyako, Iwate Prefecture, villagers built a stone monument that reads, "Do

not build a house below this point,” at 60 meters above sea level after the village was hit by the tsunami of 1933. Because the villagers have since duly lived at elevations above the stone monument, they were not affected by the tsunami that followed the Great East Japan Earthquake. In other villages, people were saved by 15-meter-high water gates and seawalls constructed based on the heights of past tsunamis.

A disaster may not occur in the very near future, like today, but if this short-term perspective prevents you from doing any disaster preparation, you are more likely to be badly hurt by a disaster in the future. Disaster risk reduction requires education and infrastructure development based on a long-term perspective.

**Could you tell us the purpose of the Basic Act for National Resilience Contributing to Preventing and Mitigating Disasters for Developing Resilience in the Lives of the Citizenry, which was established in 2013?**

This Act aims to prevent society from being catastrophically damaged, minimize the damage caused by a disaster, and secure the resilience that allows for a prompt recovery from the damage when a disaster occurs.

Based on this Act, the Fundamental Plan for National Resilience was decided by the cabinet in 2014. The Fundamental Plan defines the 45 “worst events that should never happen,” including extensive human loss due to tsunami, prolonged suspension of the supply of energy necessary for relief and medical activities, and suspension to stable food supplies. To avoid these situations, it initiates cross-sectional government-wide programs covered comprehensively by government ministries and agencies. It also establishes a policy for conducting vulnerability assessments for each program and improving them. Moreover, based on that policy, the government drafts action plans every year, and for each program, it plans the measures

to be addressed over the next year, and ascertains and evaluates the progress of the action plans.

Specific actions include building and maintaining embankments to prevent damage from tsunamis, and improving resistance to earthquakes at facilities such as schools, hospitals, public buildings, water supply and sewerage systems, and roads. In addition, they also prepare supplementary reading materials used for disaster risk reduction education at schools while supporting the creation of a Business Continuity Plan (BCP), which each company develops for itself in preparation for an emergency such as a disaster by summarizing the actions to take as a matter of normal practice and measures for business continuity and early recovery at the time of a crisis.

**What contribution can Japan make globally to the development of resilience?**

For example, Japanese construction companies possess the world's most advanced earthquake-resistance and seismic isolation technologies. The widespread use of these technologies can reduce the damage caused by earthquakes globally. In addition, the tsunami early detection and alarm system and the earthquake detection system, which issue an alert before strong shaking begins, could be used for disaster risk reduction in many other countries.

In many countries, including Japan, the concentration of populations in large cities is becoming a serious issue, and this can exacerbate damage when a disaster strikes. To avoid this, it is necessary to diversify population and industries to regional cities. One very effective way to facilitate this is to develop a high-speed railway, like the Shinkansen in Japan, which is extremely safe and can transport large numbers of people quickly. The Shinkansen could make a major contribution to developing resilience internationally as well as in Japan. 

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