Two-Level System of Tsunami Disaster Prevention and Mitigation in Japan

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On March 11, 2011, a megathrust earthquake with a magnitude of 9.0 occurred off the coast of Northeast Japan. This earthquake, referred to as the Great East Japan Earthquake, triggered a colossal tsunami with a maximum runup height exceeding 40 meters, resulting in more than 20,000 casualties and missing persons.

In the aftermath of the disaster, a series of committees were organized by the government to discuss reconstruction policies. A two-level approach for tsunami disaster prevention and mitigation was established. Firstly, for tsunamis that occur with a relatively higher frequency – once every few decades to over a century – the primary focus was placed on constructing hard infrastructure such as seawalls to prevent tsunami inundation and eliminate damage. For the scientifically-possible maximum-class tsunamis, or the so-to-speak once-in-a-millennium tsunamis, the focus was on evacuation, aiming to protect human lives and ensure that essential socio-economic activities can continue. This approach has a room to harmonize prevention and mitigation of disaster, and conservation of environment. In addition, the concept is flexible enough to apply in other countries in the world.

Based on this approach, reconstruction from the Great East Japan Earthquake has been progressing, with the hard measures largely in place. Moreover, measures against the Nankai Trough earthquake, which is predicted to have a 70 to 80% possibility of occurring within the next 30 years, are also being carried out in line with this two-level tsunami disaster prevention and mitigation strategy.

In this lecture, I will discuss the tsunami countermeasures in Japan after the Great East Japan Earthquake Tsunami.