



# Enhancement of Societal Resiliency against Natural Disasters

## A Brighter Future for a Nation Prone to Natural Disasters, Leveraging Industry-Academia-Government Cooperation to Create a Disaster Information System

Huge earthquakes such as the Great East Japan Earthquake, volcanic eruptions, super typhoons, sudden downpours and other disasters and extreme weather events have been a hallmark of Japanese life in recent years. Scientists and citizens are apprehensive about predictions of a colossal Nankai Trough Earthquake at some time in the mid-2000s. And all the while, voices call urgently for the construction of social infrastructure that can withstand such large-scale natural disasters. Our nation needs stronger, more resilient disaster prevention and mitigation functions that provide actionable real-time disaster information. This program is a vital component for ensuring the safety and confidence of both today's and future generations.



Program Director

### HORI Muneo

Professor/ Head of Center  
(as of the end of the 1st term)  
Research Center for Large-scale Earthquake,  
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\* The affiliation and title of PD shall be as of the end of the 1st period (the end of FY2018).

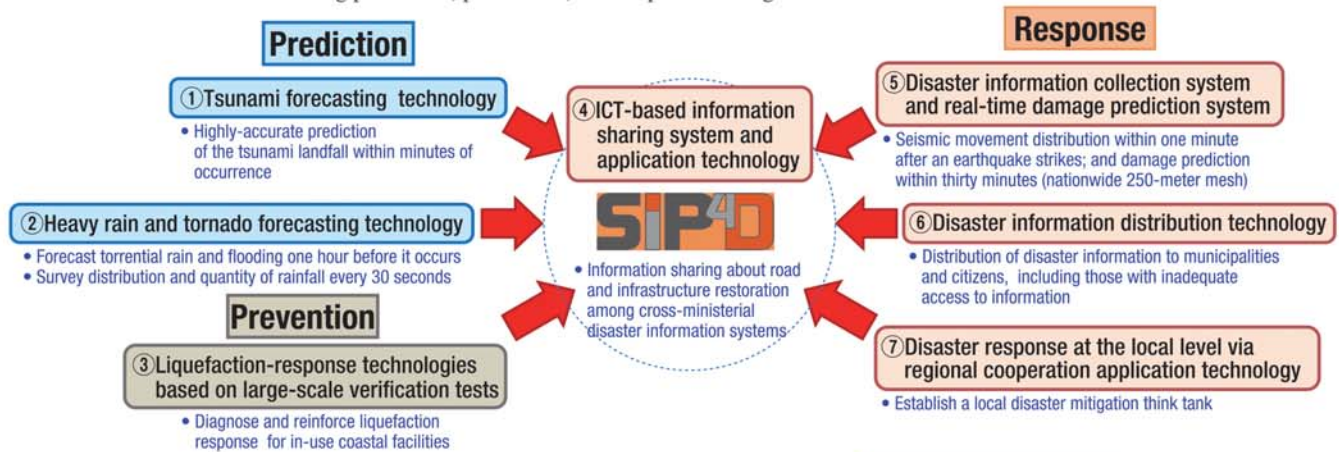
#### Profile

Graduated with a degree in civil engineering from the University of Tokyo in 1984. In 1987, he was awarded a Ph.D. in Applied Mechanics and Engineering Sciences from the University of California, San Diego. His earlier career included serving as a senior assistant professor in the School of Engineering at Tohoku University and as an assistant professor in the Faculty of Engineering at the University of Tokyo. He became a professor at the University of Tokyo's Earthquake Research Institute in 2001, and the head of the Research Center for Large-scale Earthquake, Tsunami and Disaster (LsETD) in 2012. In the same year, he also became the unit leader of the Computational Disaster Mitigation and Reduction Research Unit at RIKEN Advanced Institute for Computational Science. In April 2019, he took the current position as Director-General of Research Institute for Value-Added-Information Generation (VAiG), Japan Agency for Marine-Earth Science and Technology (JAMSTEC). His areas of expertise are applied mechanics, earthquake engineering and computational engineering. His main research topics include the application of high-performance computing to earthquake engineering.

## Research and Development Topics and Implementation Structure

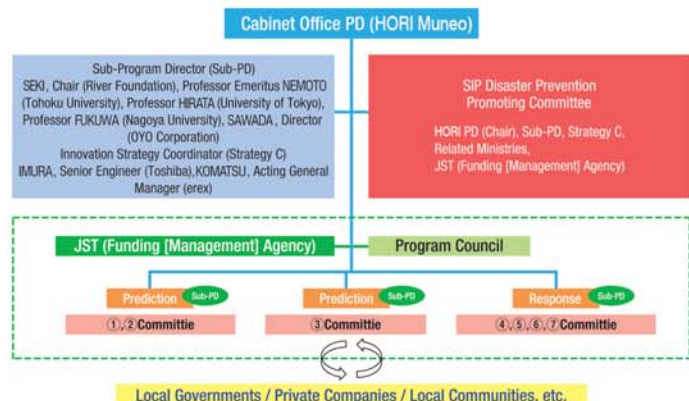
### 1. Research and Development Topics

This program focus on the development of the mechanism needed Resilience Disaster Information System to share cross-ministerial disaster information concerning prediction, prevention, and response among ministries.



### 2. Implementation Structure

The SIP Disaster Prevention Promoting Committee has been established under the Cabinet Office, consisting of a Program Director (PD), Sub-PD, related ministries and the Japan Science and Technology Agency (JST). Below this, along with a Program Council, steering committees have been set up for each research area on prediction, prevention and response. Through this structure, we run research and development projects aimed at creating mechanisms for the “cross-ministerial communication and sharing of information” and “practical and direct application of the latest scientific technology on predicting and surveying to assist in disaster response.”

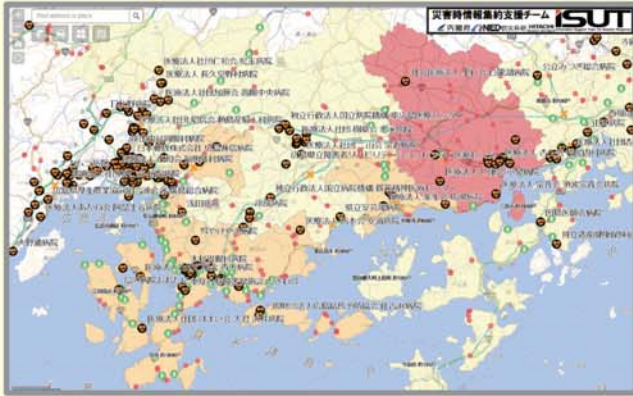


\* It shows the structure and organization at the end of the 1st period (the end of FY2018).

Major Results

SIP4D (Shared Information Platform for Disaster Management) applied to actual disasters and large-scale drills

• Used by Hiroshima Prefecture Government and others during the torrential rain in July 2018 (West Japan downpours)



Helped them promote medical activities, road reopening and material aid to refugees in the actual disaster

• Applied by North Eastern Army, Japan Ground Self-Defense Force, to large-scale drills



Integrated information from each location in JGSDF's large-scale drills

- SIP4D was used by the Information Support Team (ISUT) for disaster management under the Cabinet Office during actual disaster control operations including the West Japan downpours (July 2018). Full service of SIP4D was launched in FY2019.
- SIP4D makes it possible to superimpose all kinds of information over electronic maps so that related bodies can share the information. This system can eliminate the use of paper maps and whiteboards for hand writing during disaster control operations.

Where SIP4D was applied:

Effective use of R&D results during actual disasters and Government's and municipalities' drills throughout Japan

