



Implementation Structure

A strong central headquarters structure is vital for effective coordination between ministries and among industry, academia and government agencies. The Cross-ministerial Strategic Innovation Promotion Program has selected program directors (PDs) to be responsible for each of the 11 individual programs making up this government initiative. Each PD has been selected for their proven leadership, which allows them to effectively manage industry-academia-government coordination. The Cabinet Office has set aside a budget of ¥50 billion, shifting funds to various ministries on the path to creating this first-of-its kind breakthrough program.

As a side note, programs related to the field of health and medicine are managed under the guidance of the Headquarters for Healthcare Policy.

Implementation Structure

- Select a **PD for each program (PD)**
- PDs break through ministerial silos, managing programs from a cross-ministerial perspective.
- **Governing Board** (comprised of executive members of the Council for Science, Technology and Innovation) provides **advice/assessment**.

Fiscal 2017 Budget

- Cabinet Office has secured a **budget of ¥50 billion for science, technology and innovation promotion expenditures included in the fiscal 2017 government budget bill**.
(Budget Flow) Cabinet Office → Ministries → (Funding [Management] Agencies →) Research Organizations

PDs selected by invitation from among top-class leaders in industry and academia

Program Directors

Program Name	Program Director / Affiliation	Program Name	Program Director / Affiliation
Innovative Combustion Technology	Masanori Sugiyama Toyota Motor Corporation Frontier Research Center Executive Adviser	Infrastructure Maintenance, Renovation and Management	Yozo Fujino Yokohama National University Institute of Advanced Sciences Distinguished Professor
Next-generation Power Electronics	Tatsuo Oomori Mitsubishi Electric Corporation Chief Technical Adviser, Corporate Research and Development Group	Enhancement of Societal Resiliency against Natural Disasters	Muneo Hori The University of Tokyo Earthquake Research Institute Research Center for Large-scale Earthquake, Tsunami and Disaster (LETD) Professor/ Head of Center
Structural Materials for Innovation (SM4)	Teruo Kishi Innovative Structural Materials Association President The University of Tokyo Professor Emeritus National Institute for Materials Science Advisor Emeritus	Cyber-security for Critical Infrastructure	Atsuhiko Goto President, Institute of Information Security
Energy Carriers	Shigeru Muraki Professor Emeritus, The University of Tokyo Executive Adviser, Japan Mining Engineering & Training Center (JMEC)	Technologies for Creating Next-generation Agriculture, Forestry and Fisheries	Noboru Noguchi Hokkaido University Graduate School of Agriculture Professor, Research Faculty of Agriculture
Next-generation Technology for Ocean Resources Exploration	Tetsuro Urabe Toyota Motor Corporation Frontier Research Center Executive Adviser	Innovative Design / Manufacturing Technologies	Naoya Sasaki Hitachi, Ltd. Corporate Chief Engineer, Research & Development Group
Automated Driving System	Seigo Kuzumaki Toyota Motor Corporation Advanced R&D and Engineering Company Executive General Manager		



What is SIP Disaster Prevention ?

This work was supported by the Council for Science, Technology and Innovation (CSTI) Cross-ministerial Strategic Innovation Promotion Program (SIP), "Enhancement of Social Resiliency against Natural Disasters" (Funding agency: JST). Based on the "sharing of related information (resilience information network)," effective disaster relief is a major goal in protecting Japan from future large-scale natural disasters, securing peace of mind and safety, and promoting the international presence and industrial power of our country. Seven tasks will contribute to the three areas of Prediction (to foresee and identify disasters), Prevention (to develop liquefaction countermeasure to withstand disasters), and Response (to minimize damage when a disaster occurs). We are promoting research and development in these areas.

	Program	Research director	Research institute	Outline of research topic	For more information
Prediction	Program 1 Tsunami forecasting technology	Aoi Shin	Research Center for Reinforcement of Resilient Function National Research Institute for Earth Science and Disaster Resilience (NIED)	Tsunami inundation forecast is established for the first time. Contribute to resident safety evacuation and resident rapid relief activity through high-precision (10m mesh) tsunami inundation forecast information within 5 minutes after earthquakes.	National Research Institute for Earth Science and Disaster Prevention (NIED) Aoi, Sûzûki Tel: +81-29-851-1611
	Program 2 Heavy rain and tornado forecasting technology	Takahashi Nobuhiro	Remote Sensing Laboratory National Institute of Information and Communications Technology (NICT)	Developed world's first modern weather radar: "MP-PAWR." Provide highly accurate forecast information regarding heavy rain/strong wind.	National Institute of Information and Communications Technology (NICT) Nakagawa Tel: +81-42-327-5378 E-mail: MP-PAWR-NICT@m.nict.go.jp
Prevention	Program 3 Liquefaction-response technologies based on large-scale verification tests	Takahiro Sugano	National Research and Development Agency National Institute of Maritime, Port and Aviation Technology Port and Airport Research Institute (PARI)	Realization of robust social infrastructure against a huge earthquake. It is possible to investigate "seismic diagnosis" earthquakes-resistance measures quickly and cheaply while continuing operation for 24 hours.	National Research and Development Agency National Institute of Maritime, Port and Aviation Technology Research Institute (PARI) Sugano, Kohama, Itoh Tel: +81-46-844-5058
	Program 4 ICT-based information sharing system and application technology	Usuda Yuichiro	Research Center for Reinforcement of Resilient Function National Research Institute for Earth Science and Disaster Resilience (NIED)	Share disaster information immediately among disaster response institutions. Contribute to the unification and accurate recognition of evaluations required during disasters, where many institutions and organizations work concurrently.	National Research Institute for Earth Science and Disaster Prevention (NIED) Usuda, Hanashima Tel: +81-29-863-7553, 7314
Response	Program 5 Disaster information collection system and real-time damage prediction system	Fujiwara Hiroyuki	Research Center for Reinforcement of Resilient Function National Research Institute for Earth Science and Disaster Resilience (NIED)	Provide damage estimation information within 10 minutes after earthquakes disasters. Early evaluation of disaster situations contributes to the realization of a prompt response.	National Research Institute for Earth Science and Disaster Prevention (NIED) Nakamura, Takahashi Tel: +81-29-863-7623, 7816
	Program 6 Disaster information distribution technology	Kumagai Hiroshi	Resilient ICT Research Center National Institute of Information and Communications Technology (NICT)	Practical application of emergency communication system (ICT Unit + NerveNet) to save affected areas from information isolation. The system is portable and can be configured within tens of minutes, contributing to the prompt recovery of communication in disaster areas where communications are lost.	Resilient ICT Research Center National Institute of Information and Communications Technology (NICT) Kuri, Owada Tel: +81-22-713-7618 E-mail: Nerve-NICT@m.nict.go.jp
	Program 7 Disaster response at local level via regional cooperation application technology	Noda Toshihiro	Nagoya University Collaboration Research Center for Disaster Reduction	We developed an application based on a user perspective that can be used by local governments and companies nationwide and for disaster prevention/reduction by local self-government associations, improving regional disaster prevention.	Nagoya University Collaboration Research Center for Disaster Reduction Aichi/Nagoya Resilience Co-creation Center Tel: +81-52-789-3468

Contributing to SDGs

SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



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戦略的イノベーション創造プログラム
Cross-ministerial Strategic Innovation Promotion Program



Enhancement of Societal Resiliency against Natural Disasters

SIP: changes the approach to Disaster Prevention

Super-smart society ("Society 5.0")
SIP efforts with the goal of disaster prevention



What is the Cross-ministerial Strategic Innovation Promotion Program (SIP)?

The Cross-ministerial Strategic Innovation Promotion Program (SIP) is a national project for science, technology and innovation, spearheaded by the Council for Science, Technology and Innovation as it exercises its headquarters function to accomplish its role in leading science, technology and innovation beyond the framework of government ministries and traditional disciplines. The SIP has identified 11 themes that will address the most important social problems facing Japan, as well as contribute to the resurgence of the Japanese economy. Each research program is led by one of 11 experienced and talented program directors (PDs) who are responsible for end-to-end focused research and development, facilitating coordination among government, industry and academic entities. These directors have been charged with guiding their projects from basic research to practical application and commercialization, and ultimately to a clear exit strategy. The SIP focuses on science, technology and innovation, which drive our nation's economic growth and vitality and which will dramatically change society. Incidentally, projects related specifically to health and medical innovation fall under the direction of the Headquarters for Healthcare Policy.

Background

Science, technology and innovation are core drivers of Japan's economic resurgence and sustainable growth. The Council for Science, Technology and Innovation has, under the leadership of the Prime Minister of Japan and the Minister of State for Science and Technology Policy, promoted planning and coordination for comprehensive basic science, technology and innovation policies, taking a bird's eye view of Japan's entire science and technology landscape. With the goal of strengthening its own headquarters function, the Council for Science, Technology and Innovation proposed three new policies: (1) Strategic formulation of overall governmental science and technology budget; (2) The Cross-ministerial Strategic Innovation Promotion Program (SIP); and (3) Impulsing Paradigm Change through Disruptive Technologies (ImPACT).

The Three Arrows enhancing the headquarters function of the Council for Science, Technology and Innovation

1 Strategic Formulation of Overall Governmental Science and Technology Budget

The Council for Science, Technology and Innovation leads the formulation of the overall governmental science and technology budget, beginning with the study of budget requests at relevant ministries, utilizing policies such as the Comprehensive Strategy on Science, Technology and Innovation 2016. The government has also adopted a new mechanism whereby the Council takes the lead in directing the prioritized allocations of the budget. (The Science and Technology Budgeting Strategy Committee has convened ten times, chaired by the Minister of State for Science and Technology Policy and attended by directors-general and their equivalents from related ministries.)

2 Cross-ministerial Strategic Innovation Promotion Program

The Council for Science, Technology and Innovation takes the lead in allocating budgets that cross the traditional framework of government ministries and disciplines. The Council promotes innovation along the entire path from basic research to effective exit strategies (practical application/commercialization), as well as taking on initiatives to reform regulations and systems.

Expenditures on Science, Technology, and Innovation Promotion Fiscal 2017 Budget
¥50 billion
*Of this amount, 35 percent (¥17.5 billion) was allocated to medical fields

3 IMPACT

Promotion of high-risk, high-impact research and development that could result in industry- and society-changing disruptive science, technology and innovation.

Fiscal 2013 Revised Budget
¥55 billion
(budgeted under the Ministry of Education, Culture, Sports, Science and Technology)

Features of the SIP Program

- The Council for Science, Technology and Innovation selects projects that **answer critical social needs and offer competitive advantage to Japanese industry and the economy**.
- **Cross-ministerial, multidisciplinary** initiatives.
- Promotes focused, end-to-end research and development, from **basic research to practical application and commercialization**. Utilizes regulations, systems, special wards, government procurement, etc. Significant for international standardization.
- **Intellectual property management system** facilitating strategic corporate use of research results.



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.

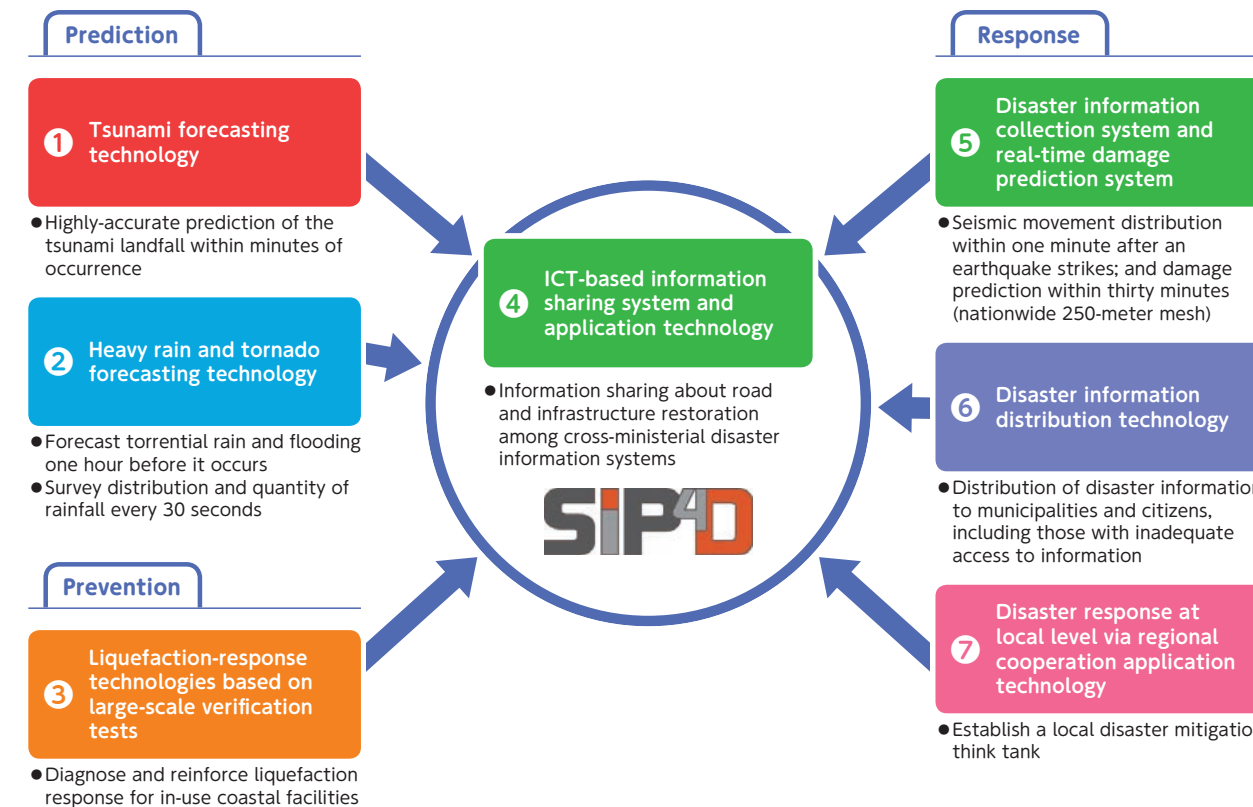


The University of Tokyo
Earthquake Research Institute
Research Center for Large-scale Earthquake,
Tsunami and Disaster (LsETD)
Professor / Head of Center

Professor Hori 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 is now the head of the LETSD in 2012, two positions he holds presently. Since 2012, he has also served as the unit leader of the Computational Disaster Mitigation and Reduction Research Unit at RIKEN Advanced Institute for Computational Science. His areas of expertise are applied mechanics, earthquake engineering and computational engineering, and his main research topics include the application of high performance computing to earthquake engineering.

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.

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