JST to jointly fund three research projects with the National Science Foundation of the United States on the theme of Human-Centered Data for Disaster Resilience under the SICORP framework

The Japan Science and Technology Agency (HASHIMOTO Kazuhito, President) has approved funding of three new collaborative international research projects jointly with the National Science Foundation (NSF) [*1] of the United States on the theme of Human-Centered Data for Disaster Resilience under the Strategic International Collaborative Research Program (SICORP) [*2] program (Attachment 1).

JST and NSF received a total of 27 proposals for this call which was open from April to August 2023. Three projects were selected for funding after an evaluation by a panel of experts in both countries and a joint review meeting (Attachment 3).

The projects will commence in April 2024 and have a planned research period of three years (36 months).

*1 About the National Science Foundation (NSF):
    https://www.nsf.gov/
*2 About the Strategic International Collaborative Research Program (SICORP):
    https://www.jst.go.jp/inter/english/index.html

Attachments
1. Outline of Funded Projects
2. Call for Proposals Outline
3. List of Panel of Experts Members (Japan)

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Outline of Funded Projects

	Project Title	Principal Investigator (Japan) Principal Investigator (United States)	Affiliation	Research Outline
1	Advanced Data and Methods to Improve Hazard Resilience for Underrepresented Groups: Labor Shortages and Immigrant Workers in Small and Mid-sized Businesses	KAJITANI Yoshio	Professor, Faculty of Engineering and Design, Kagawa University	This research project aims to elucidate and determine how small- and medium-sized enterprises (SMEs), which play a key role in disaster recovery, can improve their disaster resilience capacity to enhance overall community resilience. The U.S. team will study minority- and women-owned business, while the Japanese team will focus on businesses characterized by labor and successor shortages and a dependence on immigrant workers, in order to investigate the relationship between socially vulnerable groups and the impact of disasters. To do this, a common conceptual framework for analyzing dynamic business resilience in disaster recovery will be developed, relevant metrics will be identified, and multiple hypotheses will be tested by employing advanced econometric approaches. Through this collaboratives research project, data collection and its subsequent analysis of SMEs in the U.S. and Japan will provide an opportunity to inform policy to promote efficient resource use and improve disaster recovery measures based on a reliable database of various business practices for SMEs in the target groups.
		Alfredo Roa-Henriquez	Assistant Professor, College of Business, North Dakota State University	

	Project Title	Principal Investigator (Japan)	Affiliation	Research Outline
		Principal Investigator (United States)		
2	Enabling Human-Centered Digital Twin for Community Resilience	KOSHIMURA Shunichi	Professor, International Research Institute of Disaster Science, Tohoku University	The purpose of this research project is to apply and expand the concept of "Digital Twins" to disaster science and build a "Disaster Digital Twin" (DDT) which utilizes human-centered data to improve community resilience. Specifically, the DDT and a multi-agent simulation framework developed by the Japanese team will be applied in a context of the elderly, a population with personalized care needs which is disproportionately affected by disasters. This will be done through the integration of the "CareDEX" by the U.S. team, a platform which incorporates personalized care information from responders, caregivers and the elderly, with a digital twin developed by both teams. This integration of technology developed by the two teams is expected to enable a variety of "Virtual Disaster City" (VDC) simulations which will be useful for policy design in for the elderly with the specific needs, for example medical equipment, reduced mobility, cognitive disease, in a context of disaster resilience.
		Nalini Venkatasubramanian	Professor, Donald Bren School of Information and Computer Sciences, University of California, Irvine	

	Project Title	Principal Investigator (Japan)	Affiliation	Research Outline
		Principal Investigator (United States)		
3	An Inclusive Human-Centered Risk Management Modeling Framework for Flood Resilience	TANAKA Tomohiro	Assistant Professor, Graduate School of Engineering, Kyoto University	The diverse characteristics of flood victims such as age, occupation, race, economic status and physical attributes make inclusive flood risk management extremely challenging. This collaborative research project aims to develop a management framework that focuses on different flood impacts and adaptation actions of marginalized and non-marginalized groups which have been overlooked in previous studies. Leveraging the strengths of researchers from both countries, the Japanese team will be responsible for climate change projections and flood inundation analysis and social surveys in Japan while the U.S. team will conduct social surveys in the U.S. and develop an agent-based model that accounts for socioeconomic diversity. Finally, both teams will combine their models and data to analyze future climate and socioeconomic scenarios in two case studies.
		Yi-Chen Yang	Associate Professor, Department of Civil and Environmental Engineering, Lehigh University	This joint research is expected to establish an inclusive flood risk management framework that explicitly considers sociocultural and population diversity which contributes to improved flood risk management.

Call for Proposals Outline

Funding agencies
   Japan: Japan Science and Technology Agency (JST)
   United States: National Science Foundation (NSF)

Research area
   Human-Centered Data for Disaster Resilience Research

Eligibility (Japan)
   Any researcher actively conducting research affiliated with a domestic Japanese research institution or company, regardless of nationality.

Research period
   3 years (36 months)

Scale of funding (Japan)
   Up to 75 million yen per project for entire project duration, including overhead costs (equivalent of 30 percent of direct costs).

Evaluation process
   Based on separate evaluations by independent experts in Japan and the United States and a subsequent joint review meeting between JST and NSF.

Evaluation criteria
   i. General criteria
      1. Consistency with the research field and objectives of the call
      2. Suitability of Principal Investigator (PI)
      3. Potential for research impact and continuity
      4. Quality of research plan
   ii. Call-specific criteria
      1. Research which contributes to science and technology through new data infrastructure
      2. Interdisciplinary research, including theories and methodologies which cut across disciplines, such as engineering, history, geography, humanities, psychology, behavioral sciences, disaster medicine, data science, informatics, and others
      3. Integration of stakeholders and relevant communities in the research
      4. Synergy effects in Japanese-U.S. collaboration
      5. Potential to benefit social and public policy decision-making

List of Panel of Experts Members (Japan)

Name	Affiliation	Role
ONO Yuichi	Professor, International Research Institute of Disaster Science, Tohoku University	Program Officer
ISHIKAWA Yoshitaka	Professor Emeritus, Kyoto University	Advisor
NARA Yumiko	Professor, Faculty of Liberal Arts, The Open University of Japan	Advisor
NISHIKAWA Satoshi	Senior Advisor, Japan International Cooperation Agency	Advisor
HARUYAMA Shigeko	Professor Emeritus, Mie University	Advisor
HIRUMA Yoshiki	Vice President, Innovation Promotion Office, Business Planning & Coordination Dept., Development Bank of Japan	Advisor