JST Press Release

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Japan Science and Technology Agency (JST)
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JST Funds New Belmont Forum Projects in the Collaborative Research Action "Transdisciplinary Research for Ocean Sustainability" "Resilience in Rapidly Changing Arctic Systems" "Disaster Risk, Reduction and Resilience"

The Japan Science and Technology Agency (JST) will support in total six selected projects in the below mentioned three CRA (Collaborative Research Action)[*1] within the framework of the Belmont Forum[*2] International Opportunities Fund:

1. "Transdisciplinary Research for Ocean Sustainability"
2. "Resilience in Rapidly Changing Arctic Systems"
3. "Disaster Risk, Reduction and Resilience"

The two projects in Appendix 1, the one project in Appendix 2 and the three projects in Appendix 3 were selected for funding.

[*1] Collaborative Research Action (CRA):
Collaborative Research Actions (CRAs) are Belmont Forum activities, often including a multilateral joint call for proposals, which are set in parallel in various research fields each year. Joint calls are conducted by funding agencies from participating countries and the proposals received are jointly evaluated. Researchers involved in selected projects are supported by the participating funding agencies from their respective countries.

[*2] Belmont Forum:
The Belmont Forum (established in 2009) is a group of funding organizations in the world's major and emerging countries of global environmental change research. It aims to accelerate delivery of the environmental research needed to remove critical barriers to sustainability by aligning and mobilizing international resources.
Belmont Forum homepage: http://www.belmontforum.org/

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Appendix 1-1

Belmont Forum CRA (Collaborative Research Action)
"Transdisciplinary Research for Ocean Sustainability" List of Funded Projects

Project Title	Research Teams	Research Project Abstract
Evaluation, Mitigation and Adaption of Impacts of Ocean Acidification to Marine Ecosystems (OA-ME)	Kayanne Hajime, Professor, Department of Earth and Planetary Science, University of Tokyo (Japan)	This project aims to standardize monitoring and evaluation methods for acidification in marine ecosystems. It proposes to evaluate the effects of acidification on marine ecosystems as well as to propose potential mitigation and adaption measures.
	Andreas Andersson, Professor, Scripps Institution of Oceanography, University of California San Diego (United States)	
	Aline Tribollet, Chief Scientist, Sorbonne University (France)	
Coastal Ocean Assessment for Sustainability and Transformation (COAST Card)	Nadaoka Kazuo, Professor Emeritus, Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology (Japan)	This project aims to develop and implement an integrated "COAST Card" system, consisting of innovative tools including report cards, social network analyses, system dynamics modelling and policy development as a part of a sustainable social-coastal ecosystem coexistence system.
	William Dennison, Professor, Center for Environmental Sciences, University of Maryland (USA)	
	Pal Ingebrigt Davidsen, Professor, Department of Geography, University of Bergen (Norway)	

	Rhodora Azanza, Professor Emeritus, Marine Science Institute, University of the Philippines (Philippines)	
	Dattesh Desai, Principal Scientist, National Institute of Oceanography (India)	

The underlined name is the principal investigator of each research consortium.

Appendix 1-2

Overview of Belmont Forum CRA (Collaborative Research Action) "Transdisciplinary Research for Ocean Sustainability" and its Evaluation

1. Aims of the program

This CRA call aims to contribute to the overall challenge of ocean sustainability by inviting international transdisciplinary research teams to address one or more of the call topics described below. There is a need for integrated, interdisciplinary and cross sectoral approaches, bringing together natural and social sciences, as well as policymakers, resource managers, industries, citizens and other societal partners.

Topic 1: Pathways toward a sustainable and equitable use of oceans

Topic 2: Accounting for and minimizing impacts of global change

2. Target research field

The UN Sustainable Development Goal no. 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) sets the overall framework for this call (as well as other relevant SDGs). Because the challenge is complex, there is a need for integrated, interdisciplinary and cross sectoral approaches, bringing together natural and social sciences, as well as policymakers, resource managers, industries, citizens and other societal partners. The research community will need to integrate models, observation systems, analytics and experiments, as well as communication strategies, to create the knowledge required to map pathways and identify trade-offs in conserving ocean health for the benefit of human societies. There is a pressing need to develop systems approaches in which interactions between multiple complex social and biophysical systems are integrated to inform solutions for a sustainable future.

Even though the call topics are broad in scope, research consortia are expected to describe the vision and potential impact of the project. The consortia shall also formulate concrete pathways, actions or solutions that will enable the project to achieve these goals. Projects are also expected to include communications and dissemination/exploitation strategies and actions (open science).

3. Participating countries and region

Sweden, Japan, USA, Russia, France, Germany, Norway, Iceland, South Africa, Saudi Arabia, Australia, India, Philippines, State of São Paulo (Brazil)

4. Eligibility

The following were eligible to receive support through this call:

・Persons affiliated with a domestic research organisation where they are able to conduct research

・Persons without a history of accounting irregularities which would restrict their eligibility to apply

5. Research period

4 years

6. Amount of funding (including indirect costs)

Up to JPY 8 million per project per year

7. Evaluation process

Evaluation of proposals was conducted by an international Panel of Experts nominated by the Belmont Forum member organizations taking part in this joint call. The participating funding

organizations then met to discuss the outcome of that evaluation and jointly decided on the projects to select for funding.

8. Evaluation criteria

The following criteria were applied in evaluation of each proposal:

(1) Scientific merit

(2) Policy and social impact (including stakeholder engagement)

(3) Quality and efficiency of the project implementation

Appendix 2-1

Belmont Forum CRA (Collaborative Research Action)
"Resilience in Rapidly Changing Arctic Systems" List of Funded Project

Project Title	Research Teams	Research Project Abstract
Hydrology, Permafrost and Resilience in Eastern Russian Arctic and Subarctic (HYPE-ERAS)	Hiyama Tetsuya, Professor, Institute for Space-Earth Environmental Research, Nagoya University (Japan)	This project aims to improve understanding of the interrelationships among the impacts of climate warming on hydrological regimes, river ice conditions, permafrost thawing and related landscape changes and the corresponding societal challenges of flood hazard, river ice road infrastructure, and loss of agricultural land by ground subsidence, respectively. The ultimate goal is to contribute to increased social resilience by developing transdisciplinary knowledge of on-going changes and quantitative models for forecasting and future scenarios.
	David Gustafson, Senior Researcher, Swedish Meteorological and Hydrological Institute (Sweden)	
	Liudmila Lebedeva, Research Scientist, Melnikov Permafrost Institute (Russia)	

The underlined name is the principal investigator of each research consortium.

Appendix 2-2

Overview of Belmont Forum CRA (Collaborative Research Action) "Resilience in Rapidly Changing Arctic Systems" and its Evaluation

1. Aims of the program

As Arctic research is shifting its focus towards environmental change mitigation and improving the adaptive capabilities of its ecosystems and communities, the importance of transdisciplinary research projects on Arctic resilience led by natural and social scientists which incorporate an active role of stakeholders is greater than ever.

2. Target research field

This joint Belmont Forum CRA calls for co-developed and co-implemented proposals from integrated teams of natural and social scientists, and stakeholders to address key areas of arctic resilience understanding and action. This collaboration of academic and non-academic knowledge systems constitutes a transdisciplinary approach that will advance not only understanding of the fundamentals of arctic resilience but also spur action, inform decision-making, and translate into solutions for resilience. The term "stakeholder" is used here in its 5 broadest possible sense, allowing for co-development of projects with partners from, but not limited to, civil society, government, industry, NGOs, and indigenous organizations.

Proposing consortia are required to identify and address at least two of the seven interconnected elements of resilience: natural, social, financial, cultural, and human capitals; infrastructure; and knowledge.

3. Participating countries and region

Russia, Japan, USA, Canada, Sweden, Norway, Netherlands, France, Iceland, Denmark

4. Eligibility

The following were eligible to receive support through this call:

・Persons affiliated with a domestic research organisation where they are able to conduct research

・Persons without a history of accounting irregularities which would restrict their eligibility to apply

5. Research period

3 years

6. Amount of funding (including indirect costs)

Up to JPY 8 million per project per year

7. Evaluation process

Evaluation of proposals was conducted by an international Panel of Experts nominated by the Belmont Forum member organizations taking part in this joint call. The participating funding organizations then met to discuss the outcome of that evaluation and jointly decided on the projects to select for funding.

8. Evaluation criteria

The following criteria were applied in evaluation of each proposal:

(1) Scientific merit

(2) Policy and social impact (including stakeholder engagement)

(3) Quality and efficiency of the project implementation

Appendix 3-1

Belmont Forum CRA (Collaborative Research Action)
"Disaster Risk, Reduction and Resilience" List of Funded Projects

Project Title	Research Teams	Research Project Abstract
Data-driven Disaster Response Systems Dependent on the Time of Day, Season and Location for Megacities (DDRS)	Kohtake Naohiko, Professor, Graduate School of System Design and Management, Keio University	This project aims to design a dynamic disaster response system taking into account complex disaster risk and multiple scenario models by conducting field surveys in and around major station in metropolitan areas in Tokyo, New York and Taipei.
	Upmanu Lall, Professor, Department of Earth and Environmental Engineering, Columbia University (United States)	
	Chiang Yen-Sheng, Associate Research Fellow, Institute of Sociology, Academia Sinicia (Taiwan)	
Re-Energize Governance of Disaster Risk Reduction and Resilience for Sustainable Development (Re-Energize DR3)	Shibayama Tomoya, Professor, Department of Civil and Environmental Engineering, Waseda University (Japan)	This research project aims to support developing and developed states to build adaptive governance capabilities by combining artificial intelligence, machine learning and natural language processing to enable equitable disaster risk reduction and resilience in development planning and development programmes.
	Catalina Spataru, Associate Professor, Bartlett School of Environment, Energy and Resources, University College London (United Kingdom)	
	Felix Dodds, Adjunct Professor, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill (United States)	

	Muhammad Imran, Scientist, Qatar Computing Research Institute, Hamad Bin Khalifa University (Qatar)	
Resilient societies through smart-city technology: Assessing earthquake risk in ultra-high resolution (Smart Resilient Societies)	Hirata Naoshi, Professor, Research Center for Enhancing Metropolitan Science, National Research Institute for Earth Science and Disaster Prevention (NIED) (Japan)	This project aims to combine frontier science with high-density ground and building measurements to give innovative and visualized earthquake hazard and risk assessments with integration of smart data management for disaster reduction and a resilient society.
	Ma Kuo-Fong, Professor, Department of Earth Sciences, National Central University (Taiwan)	
	Yousef Bozorgnia, Professor, Department of Civil and Environmental Engineering, UCLA (United States)	
	Warner Marzocchi, Professor, Department of Earth, Environmental, and Resources Sciences, University of Naples Federico II (Italy)	
	Matthew Charles Gerstenberger, Principal Scientist, GNS Science (New Zealand)	
	Danijel Schorlemmer, Senior Researcher, GFZ German Research Centre for Geosciences (Germany)	

The underlined name is the principal investigator of each research consortium.

Appendix 3-2

Overview of Belmont Forum CRA (Collaborative Research Action) "Disaster Risk, Reduction and Resilience" and its Evaluation

1. Aims of the program

For this call, we define disasters as extreme environmental events that negatively impact coupled human-natural systems, including but not limited to impacts on economic, health, infrastructure, and social subsystems. Extreme environmental events may be generated by natural forces, including climate change, and/or anthropogenic causes. This call specifically focuses on research efforts involving co-engagement and collective actions of all stakeholders to ameliorate disaster risk and enhance overall societal resilience to disasters.

2. Target research field

A good context for this call can be found in four priority areas for disaster risk reduction identified in the Sendai Framework for Disaster Reduction, namely: (1) understanding disaster risk; (2) strengthening disaster risk governance; (3) investing in disaster reduction for resilience; and (4) enhancing disaster preparedness for effective response, and to "build back better" in recovery, rehabilitation and reconstruction. To rapidly and effectively respond to a disaster, potential impacts have to be simulated for each disaster and cohorts of stakeholders. These suites of modeled scenarios involve many parameters, including cultural, social, geographical, technological, economical, etc., and require the assistance of ICT and well-curated, up-to-date information. This CRA welcomes proposals which advance capabilities in complex scenario modeling and Artificial Intelligence for rapid disaster response. Proposals should also include innovative and stakeholder-appropriate communication methods to inform decision-makers and/or transmit actions to an affected population.

Within the broad themes related to risk reduction and resilience, we require proposing teams to address two or more of the elements below in their project (a-e):

a. Specific description of a systems approach to develop, test, and implement effective measures to mitigate disaster impacts
b. Focus beyond design events to include consideration of the entire possible spectrum of events related to disasters
c. Ensure infrastructure robustness to disasters
d. Increase the recovery capacity of a society
e. Demonstrate outcomes of disaster risk reduction practices that enable enhanced societal resilience in the future

3. Participating countries and region

Taiwan, Japan, USA, United Kingdom, Qatar, State of São Paulo (Brazil)

*in-kind participation: Italy, Vietnam

4. Eligibility

The following were eligible to receive support through this call:

・Persons affiliated with a domestic research organisation where they are able to conduct research

・Persons without a history of accounting irregularities which would restrict their eligibility to apply

5. Research period
   3 years

6. Amount of funding (including indirect costs)
   Up to JPY 7 million per project per year

7. Evaluation process
   Evaluation of proposals was conducted by an international Panel of Experts nominated by the Belmont Forum member organizations taking part in this joint call. The participating funding organizations then met to discuss the outcome of that evaluation and jointly decided on the projects to select for funding.

8. Evaluation criteria
   The following criteria were applied in evaluation of each proposal:
   (1) Scientific merit
   (2) Policy and social impact (including stakeholder engagement)
   (3) Quality and efficiency of the project implementation