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Japan Science and Technology Agency (JST)
5-3, Yonbancho, Chiyoda-ku, Tokyo

JST is to fund four research projects for the e-ASIA Joint Research Program in the fields of "Advanced Interdisciplinary Research towards Innovation" and "Alternative Energy"

The Japan Science and Technology Agency (JST) decided to start new projects within the framework of the e-ASIA Joint Research Program [*1] (Appendix 1, 2).

JST and 6 funding agencies from 4 countries (Appendix 3) jointly opened the call for research projects in the fields of "Advanced Interdisciplinary Research towards Innovation" and "Alternative Energy."

A total of 23 proposals, 6 in the field of "Advanced Interdisciplinary Research towards Innovation" and 17 in the field of "Alternative Energy" were submitted in response to the joint call. Based on an expert evaluation conducted in each country (Appendix 4), JST and the other funding agencies jointly decided to adopt four projects, two in the field of "Advanced Interdisciplinary Research towards Innovation" and two in the field of "Alternative Energy."

The research period is scheduled to be three years.

*1) e-ASIA Joint Research Program (e-ASIA JRP)
Through the acceleration of science and technology research exchange and collaboration in Pacific Rim countries and ASEAN countries, etc., the e-ASIA Joint Research Program (e-ASIA JRP) aims to strengthen research and development capabilities towards resolution of shared challenges across the region, including those associated with materials, alternative energy, agriculture, health research, disaster risk reduction and management, advanced interdisciplinary research towards innovation, and environment.
As part of that objective, e-ASIA JRP is intended to support collaborative research implemented among three or more of its member countries. Through the implementation of

joint research among participating countries in agreed fields of research, it is the goal of the e-ASIA JRP to contribute to economic and human resource development, as well as the resolution of various challenges in the region.
URL: https://www.the-easia.org/jrp/

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Appendix 1

Appendix 1: Abstracts of the new projects – Advanced Interdisciplinary Research towards Innovation

Project Title	Principal Investigators	Position and Institution	Abstract of Research Project
Seamless Radio and Optical Access Networks for Intelligent Commuting and Regional Communications with low-cost fabrication	KAWANISHI Tetsuya (Japan)	Professor, Faculty of Science and Engineering, Waseda University	This international research project aims to realize communication and sensing technologies based on convergence of wireless and optical fiber systems, which will play indispensable roles in the "Greener Digital Cities" a future low-carbon-footprint society realized by acquiring and analyzing large amounts of information from and to users and sensors. The objective of the project is to accelerate digital transformation and a low-carbon-footprint society through the realization of regional access networks. The goal of the research is to realize a smart transportation system that focuses on pedestrian protection and collision prevention by acquiring and analyzing roadside vehicle information, as well as a low-cost regional high-capacity communication network. The Japanese team will conduct seamless radio and optical network technologies using millimeter wave radio and optical-wireless technologies. The Thai team will develop monitoring and sensing technologies with AI-based analysis for intelligent transportation. The Philippine team will develop low-cost optical device technologies to realize communications and sensing systems. The effective combination of each team's technologies can be expected to develop an innovative communication-sensing ICT infrastructure to realize a low-carbon-footprint society and develop integrated technologies for early social implementation through international joint field tests.
	Ukrit Mankong (Thailand)	Associate Professor, Faculty of Engineering, Chiang Mai University	
	Benjamin Dingel (Philippines)	Affiliate Professor, Department of Physics, Ateneo de Manila University	

Underlined: Lead Principal Investigator

Project Title	Principal Investigators	Position and Institution	Abstract of Research Project
Air-front Smart City: A Business-Life Regenerative Innovation Gateway Hub as Transformer of Economic-system for the Region towards 2050	HAYASHI Yoshitsugu (Japan)	Distinguished Professor, Center for Sustainable Development and Global Smart City, Chubu University	The expansion of global access is expected to produce synergistic effects by exchanges between domestic and international regions, such as the reform of existing industries, the development of new industries, and the formation of cities with a high quality of life (QOL) that attract international human resources. This cooperative research project aims to provide new concepts, functions, and QOL-based evaluation method for air-front smart city developments both in real and cyber space. It connects airports and urban development for industrial innovation considering the special background of each country and region. The application and verification will be conducted for startup industrial smart technology innovation in Japan, smart green tourism in Thailand, and smart postharvest agriculture in the Philippines, respectively. Through collaborative and complementary research among three country teams that have already accumulated cooperative studies, this research is expected to provide a planning and design method applying digital transformation technology to realize an innovative greener digital cities assuring regenerative economy, decarbonization and high quality of life focusing on the uniqueness of each industry and citizens in different regions.
	Pawinee Iamtrakul (Thailand)	Associate Professor, Faculty of Architecture and Planning, Thammasat University	
	Marla Redillas (Philippines)	Associate Professor, Civil Engineering, De La Salle University	

Underlined: Lead Principal Investigator

Appendix 2

Appendix 2: Abstracts of the new projects – Alternative Energy

Project Title	Principal Investigators	Position and Institution	Abstract of Research Project
Advanced Catalytic Technologies for Sustainable Utilization of Oil Palm Empty Fruit Bunch	YOKOI Toshiyuki (Japan)	Associate Professor, Institute of Innovative Research, Tokyo Institute of Technology	Palm oil production as one of the main industries in south-east Asia results in an enormous waste of the Empty Fruit Bunch (hereafter, EFB) of oil palm. To develop an advanced catalytic technology for the sustainable utilization of EFB can contribute to realize circular economy. This joint project aims to develop advanced catalytic technologies for smart utilization of EFB to produce biofuels and valuable chemicals, leading to a sustainable society. Japan team will develop the novel catalytic process for the conversion of holocellulose to platform molecules for essential chemicals and fuels. Thailand team will focus on the catalytic conversion of lignin in EFB. Filipino team will focus on the utilization of waste palm oil.
	Chawalit Ngamcharussrivichai (Thailand)	Professor, Department of Chemical Technology, Chulalongkorn University	
	Marlon Conato (Philippines)	Professor, Institute of Chemistry, University of the Philippines - Diliman	

Underlined: Lead Principal Investigator

Project Title	Principal Investigators	Position and Institution	Abstract of Research Project
Sustainable Pathways to Expand ASEAN Renewables	YOSHIMURA Kei (Japan)	Professor, Institute of Industrial Science, The University of Tokyo	Ensuring electricity access is a key aspect of energy security for ASEAN but is challenging given the rapid growth in energy demand and the decarbonization commitment. Renewable energy sources such as solar and wind power are crucial to supply carbon-neutral electricity for the evolving grids in ASEAN, yet their availability could be highly affected by climate change. The goal of this project is to develop a novel integrated water energy modeling framework through multi-disciplinary international collaboration, which allows to identify sustainable pathways to expand ASEAN renewables under various climate and socio-economic scenarios. Japan team will focus on the global-scale hydrological and water resources management model for ASEAN countries to simulate the impact of climate change. Singapore team will advance their modeling method to identify sustainable pathways that can optimally integrate hydropower and other renewables to decarbonize ASEAN grids. Thailand and Singapore team will apply deep learning-based approaches to estimate the production of wind and solar power. Our project will identify sustainable and optimal pathways that can maintain and advance hydropower, solar and wind energy capabilities for a modern ASEAN electric grid by maximizing these renewable's overall contribution to decarbonization.
	Xiaogang HE (Singapore)	Assistant Professor, Civil and Environmental Engineering, National University of Singapore	
	Alan D ZIEGLER (Thailand)	Professor, Faculty of Fisheries Technology and Aquatic Resources, Maejo University	

Underlined: Lead Principal Investigator

Appendix 3

Appendix 3: The funding agencies which joined the call

Advanced Interdisciplinary Research towards Innovation

Country Name	Funding Agency Name
Japan	Japan Science and Technology Agency (JST)
Myanmar	Ministry of Science and Technology (MOST)
Philippines	Department of Science and Technology The Philippine Council for Industry, Energy, and Emerging Technology Research and Development (DOST-PCIEERD)
Philippines	Department of Science and Technology The Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD)
Thailand	National Research Council of Thailand (NRCT)

Alternative Energy

Country Name	Funding Agency Name
Japan	Japan Science and Technology Agency (JST)
Myanmar	Ministry of Science and Technology (MOST)
Philippines	Department of Science and Technology The Philippine Council for Industry, Energy, and Emerging Technology Research and Development (DOST-PCIEERD)
Singapore	Agency for Science, Technology and Research (A*STAR)
Thailand	Program Management Unit for Human Resources & Institutional Development, Research and Innovation (PMU-B)

Ministry of Science and Technology (MOST), Myanmar

URL: https://myanmar.gov.mm/ministry-of-science-and-technology/

Department of Science and Technology (DOST-PCIEERD), Philippines

URL: http://pcieerd.dost.gov.ph/

Department of Science and Technology (DOST-PCAARRD), Philippines

URL: http://www.pcaarrd.dost.gov.ph/

Agency for Science, Technology and Research (A*STAR), Singapore

URL: https://www.a-star.edu.sg/

National Research Council of Thailand (NRCT), Thailand

URL: https://en.nrct.go.th/

Program Management Unit for Human Resources & Institutional Development, Research and Innovation (PMU-B), Thailand

URL: https://www.nxpo.or.th/B/

Appendix 4

Appendix 4: Experts for evaluation (JST)

Advanced Interdisciplinary Research towards Innovation

Member Name	Position and Institution	Note
TAKEDA Haruo	Chief Engineer, Hitachi, Ltd.	Program Officer
ICHIKAWA Yoshiaki	Visiting Professor, Center for Rule-making Strategy, Tama University	Advisor
INOI Hiroto	Associate Professor, School of Sustainable Design, University of Toyama	Advisor
SAKANO Narutoshi	Director, Center for Public Policy Research, Fujitsu Research Institute	Advisor
NAKAMURA Fumihiko	Specially Appointed Professor, Graduate School of Frontier Sciences, The University of Tokyo	Advisor
KOKUBUN Makie	Professor Emeritus, Tohoku University	Advisor
NAGAMINE Tsukasa	Former Executive Director, National Agriculture and Food Research Organization	Advisor
ARAMAKI Toshiya	Dean, Professor, Faculty of Global and Regional Studies, Toyo University	Advisor
IIDA Toshiaki	Professor, Graduate School of Agricultural and Life Sciences, Iwate University	Advisor
INOUE Sozo	Professor, Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology	Advisor
TADA Mitsunori	Research Team Leader, Artificial Intelligence Research Center, National Institute of Advanced Industrial Science and Technology (AIST)	Advisor

Alternative Energy

Member Name	Position and Institution	Note
KOKUBUN Makie	Professor Emeritus, Tohoku University	Program Officer
ISHIHARA Tatsumi	Professor, Faculty of Engineering, Kyushu University	Advisor
EGUCHI Koichi	Professor Emeritus, Kyoto University	Advisor
KANDA Hideki	Assistant Professor, Graduate School of Engineering, Nagoya University	Advisor
GOUKON Nobuyuki	Associate Professor, Faculty of Engineering, Niigata University	Advisor
SHIRATORI Yusuke	Professor, Department of Mechanical Science and Engineering, School of Advanced Engineering, Kogakuin University	Advisor
SUGIYAMA Masakazu	Professor, Research Center for Advanced Science and Technology, The University of Tokyo	Advisor
TAKAHASHI Kiyoshi	Deputy Director, Social Systems Division, National Institute for Environmental Studies	Advisor
NODA Reiji	Associate Professor, Graduate School of Science and Technology, Gunma University	Advisor
HAYASHI Junichiro	Professor, Institute for Materials Chemistry and Engineering, Kyushu University	Advisor
HONMA Itaru	Professor, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University	Advisor

ANNEX

Annex: Abstract of the joint call for proposals

(1) Proposal field application requirements:

In addition to the Japanese team, the project consortium must include members from a minimum of two different countries listed as participating in the call.

(2) Applicant eligibility (Japan side):

Any independent researcher personally affiliated with (and actively conducting research at) a domestic Japanese research institution, regardless of nationality, is eligible to apply.

(3) Research period:

3 years (36 months)

(4) Amount of funding (JST):

Up to 35.1 million yen from JST to the researchers (Japan-based team) per project over three years, inclusive of overhead costs (30 percent of direct costs).

(5) Evaluation method:

Based on evaluation by experts from the countries which held the joint call, including Japan, and discussion by JST and other funding agencies.

(6) Evaluation criteria (JST):

The following were among the general criteria considered in the evaluation process:

1)Conformity with e-ASIA JRP aims such as regional relevance and designated research fields
2)Capability of the research leaders and relevance of their current research activities
3)Effectiveness and synergistic mutual benefit of the joint research activities
4)Validity of the research plan
5)Effectiveness and continuity of exchange
6)Validity of the exchange plan