e-ASIA Joint Research Program (the e-ASIA JRP)
Research Cooperation in the field of 'Alternative Energy'
on the sub-topics of 'Renewable Energy', 'Energy Storage',
and 'Energy Management Systems'
13th Joint Call for Proposals to be submitted by 29 March 2024

The e-ASIA Joint Research Program (hereinafter referred to as the "e-ASIA JRP") aims to develop a vibrant and collaborative research community in Science and Technology, to promote innovation in the East Asian region, and to contribute to the region's economic development. As part of the program, the Member Organizations of the e-ASIA JRP listed below have agreed to implement a joint call for proposals of multilateral cooperative research activities.

Participating Member Organizations (listed in alphabetical order)

1) Indonesia: National Research and Innovation Agency (BRIN)
2) Japan: Japan Science and Technology Agency (JST)
3) New Zealand: Ministry of Business, Innovation and Employment (MBIE)
4) Philippines: Department of Science and Technology (DOST-PCIEERD)
5) Thailand: Program Management Unit for Human Resources & Institutional Development, Research, and Innovation (PMU-B)

There are some additional requirements to fulfil the eligibility for the following organizations, please refer to below table:

Member Organizations	**Eligibility/Additional requirements**
1) Indonesia: National Research and Innovation Agency (BRIN)	• Principal Investigator (PI) is an Indonesian citizen, a BRIN or non-BRIN researcher (university or other research institution, either from a business entity or community organization in Indonesia), civil servants or non-civil servants who has a doctoral education qualification and competency in conducting research with international partners. • One team member could only be participated maximum in 2 proposals (1 proposal as Principal Investigator and 1 proposal as member, or as member in both proposals). • The proposal must be written in English and submitted to Directorate of Research and Innovation Funding BRIN by email to dana-risnov@brin.go.id (Subject email: CFP13-eASIA-Topic-Name of PI-Institution of PI) and using the provided template.

	• Application submission and correspondence may send by email to dana-risnov@brin.go.id. The deadline for submitting your proposal is March 8th, 2024. You do not need to submit a proposal if you are merely a team member and not the Lead PI. Detail application process, links to guidance/ policy materials can be seen here https://pendanaan-risnov.brin.go.id
2) Japan: Japan Science and Technology Agency (JST)	• Any independent researcher personally affiliated with and actively conducting research at a domestic Japanese research institution, regardless of nationality, is eligible to apply as a Principal Investigator. • In addition to the common Application Forms in English (Form 1E-9E), Japan based applicants are required to complete and submit additional application forms in Japanese (Form 1J and 2J) to JST by "e-Rad" (https://www.e-rad.go.jp/index.html) before 14:00 (Japan Standard Time) 29th March 2024.
3) New Zealand: Ministry of Business, Innovation and Employment (MBIE)	• The proposal must be made by a New Zealand-based research organisation or a New Zealand-based legal entity representing a New Zealand-based research organization. • The New Zealand Principal Investigator must be employed by a New Zealand-based research organisation, or a New Zealand-based legal entity representing a New Zealand-based research organization. • The proposal must not be made by a department of the public service as listed in Schedule 2 of the Public Service Act 2020. • In addition to the proposal submitted to the e-ASIA secretariat by the project Principal Investigator, the New Zealand applicant must submit a separate proposal through MBIE's investment portal before the closing date on 2 April 2024, 12:00 PM (New Zealand Standard Time) and meet all the administrative requirements. The link to the portal and full details of the opportunity can be found via the MBIE Catalyst Fund Website • Proposals must not benefit a Russian state institution (including but not limited to support for Russian military or security activity) or an organisation outside government that may be perceived as contributing to the war effort.
4) Philippines: Department of Science	• Any Filipino connected with public and private universities and colleges and Research and

and Technology (DOST-PCIEERD)	Development Institutes, with proven competence may apply for funding support provided that projects fall under the specific research areas. • Interested parties should submit their proposals using the DOST-GIA proposal format through the DOST E-proposal portal, http://dpmis.dost.gov.ph before the Closing Date on 29 March 2024, 5:00PM: Together with the proposal, DOST-PCIEERD requires submission of a formal letter of intent from the applicant and an endorsement from the authorized head of organization.
5) Thailand: Program Management Unit for Human Resources & Institutional Development, Research, and Innovation (PMU-B)	• Thai applicants must submit the proposal and endorsement letters from all research partners to PMU-B through NRIIS: https://nriis.go.th • Thai applicant's institution must endorse the submission in the NRIIS system. • Lead PI must also submit proposal to the e-ASIA JRP Secretariat. All submission process must complete before the Closing Date before 17:00 PM, 29 March 2024.

*****It is very important to read call guidelines carefully. It may affect the eligibility of the whole research team. Please see Appendix for more information on Eligibility/Additional requirements.*****

I. Aim of Joint Call and Research Area

The aim of the Joint Call is to strengthen multilateral collaboration among researchers of the countries participating in the call and to solve issues common across the region, in the field of **"Alternative Energy"** specifically the topic of "Renewable Energy, Energy Storage, and Energy Management Systems."

Background

IPCC has highlighted the importance of transitioning to low-carbon and renewable energy sources to mitigate climate change. UNFCCC also indicated that the uptake of renewable energy is moving faster and further than projected but radical action is still needed to accelerate the energy transition. This would require the cooperation of countries and regions to achieve the goals of carbon neutrality in 2050. In addition, ASEAN has recognized the importance of transitioning towards a cleaner energy system encompassing renewable energy sources like bioenergy and advanced energy materials. The regional goal is to raise the share of

renewable energy in its total primary energy supply to 23% by 2025, as part of its efforts towards environmentally sustainable and efficient energy systems. The integration of renewable energy (bioenergy, wind, hydrogen, and thermal), energy storage (especially advanced energy materials for energy conversion & storage), and energy management systems is crucial for achieving emission reduction and environmental sustainability. Despite challenges such as the prohibitive cost of upgrading systems and the prevailing dominance of fossil fuels in the current energy mix, there have been positive developments in the adoption of renewable energy within the region.

Research Area

The endeavor to achieve sustainable and eco-friendly energy solutions relies significantly on the alternative energy value chain, which plays a pivotal role in transforming the way we produce, convert, and manage energy. This value chain encompasses three critical components that synergistically contribute to a cleaner and more efficient energy landscape: bioenergy, advanced materials for energy conversion, and energy management systems. Further details regarding the specific sub-topics for which we are seeking proposals are provided below to guide applicants.

The five (5) Participating MOs will be taking part on the following sub-topics:

Participating MO	Renewable Energy	Energy Storage	Energy Management Systems for Microgrids and Decentralized Electricity Utilities
Indonesia: National Research and Innovation Agency (BRIN)	✓	✓	
Japan Science and Technology Agency (JST)	✓	✓	✓
New Zealand: Ministry of Business, Innovation and Employment (MBIE)	✓	✓	✓
Philippines: Department of Science and Technology (DOST-PCIEERD)	✓	✓	✓
Thailand: Program Management Unit for Human Resources & Institutional Development, Research, and Innovation (PMU-B)	✓	✓	

SUB-TOPIC 1: RENEWABLE ENERGY

Renewable energy subtopic includes but are not limited to Bioenergy, Hydrogen and Wind:

1-1. Bioenergy: Bioenergy & Biofuels

Bioenergy, encompassing biofuels and bio-based energy sources, harnesses the potential of biomass. This biomass comprises a range of materials, including agricultural and forest residues, energy crops, sewage sludge, biogenic components in municipal solid waste, microalgae, and various organic materials. It serves as a renewable energy source with the capacity to be converted into multiple useful forms of energy, including heat, electricity, and transport fuels. This conversion process is achieved through diverse technologies, primarily categorized into thermal methods (such as direct combustion, gasification, pyrolysis, and hydrothermal treatment) and biochemical processes (including direct catalytic conversions like fermentation).

Within this context, this call for proposals welcomes submissions on the following themes:

a. **Utilization and Advancement of Agricultural Waste for Alternative Energy and Carbon Mitigation:** This involves exploring the use of wood pellets as an alternative energy source and integrating various feedstock sources, such as microalgae and bacteria, to maximize the utilization of residual biomass for high-value products.
b. **Zero-Waste Approach to Biomass Collection and Conversion Technologies:** This will prioritize proposals that adopt an integrated 'zero-waste' approach, ensuring the efficient collection and utilization of biomass for conversion into essential energy forms, including heat, electricity, and various fuels.
c. **Integration of Biomass Waste-to-Energy Technologies into Existing Industries:** Proposals should seamlessly incorporate biomass Waste-to-Energy technologies into established industrial processes, enhancing sustainability and reducing environmental impact.
d. **Development of Sustainable Transportation Fuels:** This involves advancing *sustainable aviation fuel* and *sustainable marine fuel*, contributing to the reduction of greenhouse gas emissions and promoting cleaner modes of transportation.
e. **Hydrogen Production from Biomass and Its Diverse Applications:** This

encompasses hydrogen production from biomass and its various applications, including residential heating, vehicles, and industry, with a focus on sustainability and efficiency.

Through these initiatives, we aim to pave the way for a more sustainable and energy-efficient future, harnessing the potential of biomass and bioenergy to address critical energy and environmental challenges.

1-2. Green Hydrogen and Hydrogen Economy

Hydrogen, besides being an alternative energy resource, finds applications in hydroprocessing to produce alternative fuels and offers environmentally friendly combustion by producing only water. However, the commercial use of clean hydrogen fuel faces economic viability challenges in production, storage, transportation, and utilization. To address these constraints, this topic welcomes proposals on:

a. **Cost-Effective Biohydrogen Production and Water Bio-Splitting:** This topic prioritizes the development of cost-competitive biohydrogen production methods and bio-splitting of water, aiming to overcome barriers related to production viability and competitiveness in the hydrogen fuel sector.
b. **Research on Green Hydrogen for Heavy Industries:** Exploring the use of green hydrogen in energy-intensive sectors such as steel, aluminum, and cement, including its role in generating electricity to comply with initiatives like the Carbon Adjustment Mechanism before Borders (CBAM) of the European Union or similar mechanisms.
c. **Study on the Development of Hydrogen Economy Ecosystem:** This topic delves into the factors supporting the production, transportation, storage, and utilization of hydrogen, with a focus on building a robust hydrogen economy.

1-3. Wind Energy

Wind energy is captured by utilizing wind turbines, which are designed to convert the kinetic energy of the wind into electricity. This conversion process relies on the aerodynamic principles similar to those used in the wings of airplanes or the rotor blades of helicopters.

a. **Floating Offshore Wind Turbine (FOWT) technology**: The call to action centers on advancing Floating Offshore Wind Turbine (FOWT) technology. FOWTs operate in deep waters, buoyantly tethered to the seabed through mooring systems, allowing access to abundant offshore wind resources.

Their potential impact on expanding wind energy's reach and efficiency underscores their role in a cleaner and more sustainable energy landscape.

FOWT is a relatively unexplored technology in Indonesia due to the immature design concept of floating structures tailored to the characteristics of local Indonesian waters. Research activities shall primarily involve gathering and analyzing primary data concerning electrification regions and potential sites. This data will be used to assess local electricity demand, wind resource potential, and the availability of supporting infrastructure for the manufacture, deployment, and operation of FOWTs.

SUB-TOPIC 2: ENERGY STORAGE
Energy Storage focusing on Advanced Materials for Energy Storage for EV

2-1 Advanced Materials for Electrochemical Energy Storage (EES) for EV and Stationary Storage

The global imperative to transition towards a sustainable energy future has never been more pressing. Addressing climate change and reducing greenhouse gas emissions are paramount concerns. As the electric vehicle (EV) market expands and renewable energy sources become increasingly integrated into our energy grids, the role of advanced materials in energy storage has gained critical significance. These materials underpin the clean energy revolution by facilitating the widespread adoption of electric vehicles, enabling efficient energy storage from intermittent renewables, and reinforcing grid stability.

Hence, this topic focus centers on advancing Electrochemical Energy Storage (EES) technologies, serving the dual purposes of electric vehicles (EVs) and stationary energy storage applications. It welcomes proposals spanning various domains:

a. **Fuel Cell and Hydrogen Technology:** Exploring the extensive potential of fuel cells and hydrogen technology for energy storage, aligning with the quest for cleaner and more efficient power sources in both mobile (EVs) and stationary contexts.
b. **Supercapacitors:** This research topic should delve into the realm of supercapacitors, a technology promising rapid energy discharge and recharge. Supercapacitors bridge the gap between traditional batteries and capacitors,

offering unique advantages for energy storage.

c. **Rechargeable Batteries:** Encompassing rechargeable batteries, this research area not only includes established Li-ion-based chemistries but also extends to alternative chemistries beyond Li-ion, such as Sodium, Zinc, Aluminum, and more. The research explores multi-ion approaches like Lithium-Ion and Sodium-Ion, introducing novel dimensions to battery technology.
d. **Development of Conductive Materials as Additives:** Recognizing the importance of extending the lifespan of energy storage solutions, this research area focuses on the development of conductive materials as additives. This aims to enhance the performance and longevity of Nickel-Manganese-Cobalt (NMC) batteries and similar technologies.

e. **Recycling of Spent Battery Materials:** Sustainability remains at the core of this research area, focusing on effective methods to recycle materials extracted from spent batteries. Closing the materials loop contributes to environmental preservation and resource efficiency.

f. **Carbon-based materials (from agricultural and kitchen wastes) for battery applications:** This groundbreaking avenue explores harnessing biomass from agricultural and kitchen waste, converting it into biochar. Biochar holds promise for fuel cell and supercapacitor applications, offering an eco-friendly and cost-effective source of carbon-based materials.

2-2. Materials Informatics and Computational Materials Science for Energy Materials

This topic aims to harness the power of materials informatics and computational materials science, including cutting-edge quantum computing, to accelerate the discovery, prediction, and design of advanced materials tailored for energy applications. The primary focus centers on advanced materials utilized for the energy sector, encompassing various applications in energy storage, conversion, and other energy-related technologies.

a. **Data-Driven Approaches, Computer Simulations, and Quantum Computing for Advancing Advanced Materials in Energy:**
   This call topic places a strong emphasis on employing data-driven methodologies, sophisticated computer simulations, and the transformative potential of quantum computing to propel the development of advanced

materials dedicated to efficient and sustainable energy generation, storage, and utilization. These innovative approaches aim to create materials that not only significantly enhance energy-related processes but also hold the promise of elevating the overall efficiency, sustainability, and performance of systems employed in energy generation, storage, and utilization. By doing so, this research topic shall contribute to the evolution of cleaner, more efficient energy technologies, aligning with the global drive towards a sustainable energy future.

SUB-TOPIC 3: ENERGY MANAGEMENT SYSTEMS

Energy management systems play a pivotal role in ensuring the efficient and effective utilization of energy across various sectors, including industrial, commercial, and residential applications. This topic seeks to fortify energy supply resilience in urban areas and enhance reliability in rural regions. The primary focus of this call for proposals encompasses the following key areas:

a. **Advancing Energy Technologies for Micro-Small Medium Enterprises (MSMEs):**
   The objective is to implement novel, cost-effective, and efficient energy technologies customized for Micro-Small Medium Enterprises (MSMEs), with a focus on reducing energy consumption while maintaining production yield and processing efficiency. The overarching goal is to seamlessly integrate low-carbon energy systems into MSME operations, effectively enhancing their environmental sustainability and reducing their carbon footprint.

b. **Application, Demonstration, and Optimization of EMS:**
   This facet emphasizes the application, demonstration, and optimization of energy management systems, with a particular focus on meeting the diverse needs of consumers and 'prosumers'—individuals who both consume and produce energy. The objective is to showcase the real-world applicability of these systems, highlighting their effectiveness in various contexts and for different user profiles.

c. **Energy Management Systems for Microgrids and Decentralized Electricity Utilities:**
   This is dedicated to the development of energy management systems tailored for microgrid and decentralized electricity utilities operating in non-

grid connected areas, including remote communities (especially geographically-isolated and disadvantaged areas) and economic zones. The aim is to establish robust monitoring, control, and optimization mechanisms for power supply, distribution, and load management in these settings, with an emphasis on promoting the interconnection and integration of independent power generation systems. Additionally, it involves introducing hybrid low-carbon and waste-to-energy generation technologies within decentralized industrial zones.

d. **Innovative Energy-Efficient and Conservation Technologies:**
   This topic explores innovative technologies designed to enhance energy efficiency and conservation across commercial and residential buildings. Research and development efforts encompass monitoring solutions, anomaly detection systems, thermal management technologies, and load management control systems, all with the goal of significantly reducing energy consumption in these sectors while maintaining or even improving overall comfort and functionality.
e. **Integration of Carbon Capture and Storage (CCS) and Hydrogen:**
   This facet underscores the integration of carbon capture and storage (CCS) alongside hydrogen technologies into existing Energy Management Systems (EMS). The objective is to create holistic energy solutions that not only optimize energy consumption but also contribute to carbon emissions reduction and the development of sustainable hydrogen-based energy systems.
f. **Techniques for Energy Dispatch to Enhance Grid Reliability and Resilience:**
   Innovative techniques for energy dispatch are explored to enhance grid reliability and resilience. This includes storing energy during low-demand periods for use during high-demand periods, contributing to grid stability.
g. **Energy storage solutions that are high-performing, safe, and cost-effective.**
   These solutions aim to meet the escalating demand for sustainable transportation and efficient grid energy storage. By enhancing critical aspects of these technologies—such as energy density, power output, cycle life, and environmental sustainability—this research topic aims to facilitate widespread adoption, driving the global transition toward clean energy.

Collectively, these research topics are within the realm of energy management

systems which aims to drive efficiency, sustainability, and resilience across industrial, commercial, and residential sectors. By fostering the development and implementation of cutting-edge technologies and strategies, this will advance the global transition towards cleaner, more reliable energy management practices.

Research Approach

The e-ASIA JRP presents a research collaboration opportunity for researchers, as it offers access to funding and other resources to support multi-investigator research engaging scientists in at least 3 countries in this call. To effectively utilize and maximize the unique opportunities provided through the e-ASIA JRP and to synergistically address the need for Alternative Energy Integrated Systems in East Asia, proposals that include the following integrated research approaches are strongly encourage:

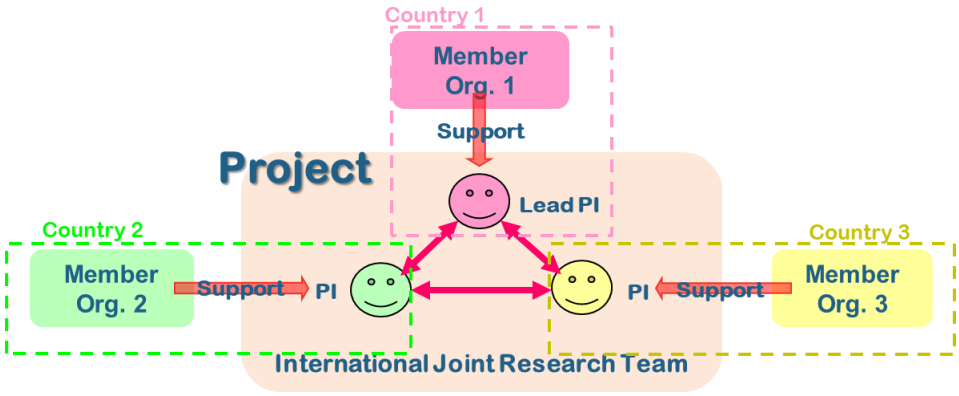
Interdisciplinary research

- Training, mentorship, and career development of early-career (early-stage) investigators
- Communication, information, and data exchange
- Sample/data sharing and analysis
- Capacity building
- Community and stakeholders' engagement
- Commitment to long-term sustainability
- Establishment and maintenance of networks of collaborating institutions

Collaborative research projects, supported through this program, should be pursued through mutually beneficial partnerships and shared leadership that contribute to scientific innovation, research capacity and social applicability in the region. The study findings from the e-ASIA JRP projects should be disseminated to expand scientific knowledge and facilitate the utilization of the research results to enhance evidence-based environmental practice in East Asia and in other parts of the world.

II. Support/ Funding Modality

In principle, each Member Organization will support its own country's researchers in research projects selected for funding through this joint call with the type of support available as defined under "Funding Modality" in the table below. The duration of a selected research project will be three years (36 months), in total, from the start date. Details of conditions of support will vary by Member Organization. Applicants should carefully consider information included in the Appendix for each Member Organization's rules and regulations.



Participating Member Organizations and Funding Modality

Participating Member Organizations	Funding Modality
(1) Indonesia: National Research and Innovation Agency (BRIN)	New, In-kind
(2) Japan: Japan Science and Technology Agency (JST)	New
(3) Philippines: Department of Science and Technology (DOST-PCIEERD)	New
(4) New Zealand: Ministry of Business, Innovation and Employment (MBIE)	New
(5) Thailand: Program Management Unit for Human Resources & Institutional Development, Research, and Innovation (PMU-B)	New

New: Each Member Organization will support a selected project by new funding

Re-budgeting: Funds already allocated to an existing project by each Member Organization will be reallocated to the e-ASIA JRP

In-kind: Each Member Organization does not provide budget for a selected project. A researcher participating in a selected project will use funds already available, but no additional funds will be provided by each Member Organization. In principle, at least one country must participate via “new” or “re-budgeting” funding modality. In other words, proposals cannot be accepted if all the applicants intend to participate through an “in-kind” basis.

III. Application

In addition to the following common requirements, there are specific rules clarified by each Member Organization. For specific rules by each Member Organization, please refer to the Appendix or consult the person noted in Section VI.

III-1. Applicant/ Project Consortium

A project consortium must consist of at least three eligible research teams from at least three different participating countries listed above.
Each research team shall be led by a Principal Investigator (PI), and a consortium shall be led by a Lead Principal Investigator (Lead PI) specified among the PIs.

The Lead PI will be responsible for running and managing the project. The Lead PI will be the contact point with the e-ASIA JRP Secretariat on behalf of the whole consortium and is responsible for the administrative management of the complete project, should it be awarded support. In addition, the Lead PI is responsible for leading the project activities at his/her own institution. The Lead PI must be affiliated with an institution situated in the home country of one of the Member Organizations participating in this call.

All PIs must fulfil their respective domestic eligibility rules for research application. Researchers from industry are encouraged to participate in the collaboration in accordance with domestic eligibility rules. PIs should contact the person noted in Section VI for information on their respective domestic eligibility rules.

III-2. Proposal Submission

Proposals must be submitted from the Lead PI by e-mail to the e-ASIA JRP Secretariat at the e-mail address specified below. Applications shall be written in English.

Deadline for Submission:
17:00 (Thai Standard Time, UTC+7) 29 March 2024

Please submit the proposal to:

Yukio Kemmochi, PhD. (Mr)
e-ASIA JRP Secretariat
E-mail: easia_secretariat@jst.go.jp

Note1: The e-ASIA JRP Secretariat will send a confirmation email to the Lead PI to confirm receipt of his/her proposal. In case the Lead PI does not receive a confirmation e-mail from the e-ASIA JRP Secretariat within one week, they should contact the e-ASIA JRP Secretariat at the address above. The e-ASIA JRP Secretariat does not assume any responsibility for delay or error in e-mail delivery.
Note2: Application forms sent by any method other than e-mail, such as post, fax or telex will be rejected.

< Important Notice to ALL PIs >

Make sure to submit all necessary application documents requested by each Member Organization of your country, in addition to the application to the e-ASIA JRP Secretariat (submitted by Lead PI only), because each Member Organization may request applicants of its country to submit another form of proposals with another deadline date. Proposals shall satisfy both common requirements written in this call guideline and individual requirements requested by each Member Organization. A research team that does not satisfy individual requirements of the Member Organization of your country will not be deemed as eligible research team.

For individual requirements by each Member Organization, please refer to the Appendix or consult the person noted in Section VI.

The proposal shall include:

a) Project description including how the collaboration will be carried out, with clear statements of what roles each country's researchers will play respectively in the project;
b) Description of the expected outcomes of the proposed project, scientifically as well as in terms of relevance for industry and society;

c) Description of the ongoing activities and specific advantages of each group respectively, which form the basis for the proposed joint project;
d) Description of the expected value added from the proposed joint project, including how the competence, technology and other resources in each group complement each other;
e) Description of how the project is expected to help strengthen multilateral research collaboration over the longer term;
f) Description of the expected value added from the multidisciplinary approach in the proposed joint project; and
g) Description of how the proposed joint project interacts with or impacts other comparable activities worldwide.

III-3. Application Forms

Researchers should prepare the following application (proposal) forms in English ("E").

For further requirements by each Member Organization, researchers shall refer to the Appendix or shall consult each Member Organization of his/her country.

Form 1E	Application outline (title, acronym, general description, and proposed period of cooperative research project)
Form 2E	Summary of the project
Form 3E	Research leaders' information (their CVs*****)
Form 4E	Research team (list of individuals committed to the cooperative research project in each country)
Form 5E	Description of the cooperative research project
Form 6E	Research networking plan
Form 7E	Plan to nurture early career researchers
Form 8E	Budget plan for the project
Form 9E	Research infrastructures and funds from other sources

***** *The description of Curriculum Vitae (CV) from each PI shall include basic information on education, past and present positions, membership of relevant organizations/associations and a publication list in the past 5 years.*

In addition to the documents above, all projects must comply with ethical review and requirements of each Member Organization, especially for research

activities related to human and animal subjects. PIs shall refer to the Appendix for each Member Organization's ethical requirement.

IV. Evaluation

IV-1. Evaluation Process

A proposal will be evaluated at each relevant Member Organization of the project consortium, according to the evaluation criteria clarified in the following subsection.

Based on the results of the evaluation conducted at each Member Organization, a final decision will be made at the joint panel meeting among the participating Member Organizations, followed by approval at the e-ASIA JRP Board Meeting.

IV-2. Evaluation Criteria

Proposals will be evaluated according to the following common e-ASIA JRP evaluation criteria, incorporated with evaluation criteria clarified by each Member Organization. For the evaluation criteria clarified by each Member Organization, please refer to the respective Appendix or consult each respective Member Organization.

1) Regional Relevance of the Research

The research activity should contribute to:

- The advancement of scientific discovery;
- The development of science and technology in the region; and
- The resolution of significant relevant issues across the region.

2) Mutual Benefits of the Joint Research

Activities of mutual benefit to the collaborators and their institutions are desirable. Mutually beneficial in the sense that the projects utilize unique opportunities the e-ASIA JRP will provide that could not be achieved either through bilateral or individual research but only through multilateral cooperation.

3) Effectiveness of Exchange

The project should:

- Contain activities to nurture early career researchers through research activities;
- Contain activities to engage female researchers were strengthening

capacity is needed; and
- Enhance research capacity in the region.

IV-3. Notification of the Final Decision

The Lead PI will be notified of the final decision by the e-ASIA JRP Secretariat as soon as the final decision is taken and approved by all Member Organizations in the e-ASIA JRP. (Approximate implementation of the notification: End of November 2024)

V. Project Implementation

Project reporting will be in accordance with the respective Member Organization's rules. Please contact respective Member Organizations for more details.

In addition to the Member Organization's requirements, the consortia are expected to deliver Progress Reports and Final Reports to the e-ASIA JRP Secretariat, in English, including a description of their collaboration and a publishable summary of the project status. The Progress and Final Reports will be reviewed by the Board and Scientific Advisory Council. It is also encouraged that the project proactively disseminates its achievements to the public.

V-1. Progress Report

In the middle of the research period (i.e., after one and a half years), the lead PI shallpromptly develop and submit an integrated progress report to the e-ASIA JRP Secretariat on the status of the joint research.

V-2. Final Report

A final report shall be developed and submitted by the Lead PI to the e-ASIA JRP Secretariat within two months after the joint research period is completed.

V-3. Others

All the researchers/research institutions organizing a consortium are strongly recommended to conclude a Collaborative Research Agreement (hereinafter referred to as "CRA (Collaborative Research Agreement)") to assure optimal understanding and coordination among the collaborating scientists working on each project before project starts. CRA should, with due respect to the researchers' institutions and the Member Organizations' intellectual property and data handling policy, include the

treatment of intellectual property rights, handling of confidential information, publication of research results, warranty and indemnification, and access to and transfer of the relevant materials. Applicants shall refer to the Appendix for each Member Organization's requirement.

VI. Contact information

Applicants should contact the following for information on each Member Organization's eligibility rules or support conditions:
Also please refer to the Appendix for information on each Member Organization.

Country: Member Organization	Contact Point
(1) Indonesia: National Research and Innovation Agency (BRIN)	Dr. Ajeng Arum Sari Director of Research and Innovation Funding Phone: +62 811-1064-6771 E-mail: dana-risnov@brin.go.id
(2) Japan: Japan Science and Technology Agency (JST)	Mr. Shinji Otsuka, Dr. Takumi Katsumata Tel No: +81(0)3-5214-7375 E-mail: easiajrp@jst.go.jp
(3) Philippines: Department of Science and Technology (DOST-PCIEERD)	DR. ENRICO C. PARINGIT E-mail: oed@pcieerd.dost.gov.ph
(4) New Zealand: Ministry of Business, Innovation and Employment (MBIE)	International Science Partnerships E-mail: internationalscience@mbie.govt.nz
(5) Thailand: Program Management Unit for Human Resources & Institutional Development, Research, and Innovation (PMU-B)	Dr. Angkana Jantanaprasartporn Tel: +66 2470 7961-4 Email: pmub.gp@nxpo.or.th

Applicants should contact the following for general inquiries:

Yukio Kemmochi, PhD. (Mr)
e-ASIA JRP Secretariat / Japan Science and Technology Agency
Room 218 Innovation Cluster1 Building
National Science and Technology Development Agency (NSTDA)
111 Thailand Science Park, Phahonyothin Road
Khlong Nueng, Khlong Luang, Pathum Thani 12120 THAILAND
Tel: +66-2-564-7713
E-mail: easia_secretariat@jst.go.jp

Appendix

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Information about each Member Organization (alphabetical order by country)

1) Indonesia: National Research and Innovation Agency (BRIN)
2) Japan: Japan Science and Technology Agency (JST)
3) New Zealand: Ministry of Business, Innovation and Employment (MBIE)
4) Philippines: Department of Science and Technology (DOST-PCIEERD)
5) Thailand: Program Management Unit for Human Resources & Institutional Development, Research, and Innovation (PMU-B)

1) Indonesia: National Research and Innovation Agency (BRIN)

BRIN is supporting the following topics Alternative Energy:

Subtopic 1: Renewable energy based on bioresources (genetic engineering, modified enzymes, catalyst technology, engineered microbes);

Subtopic 2: Energy Storage (high-functional material for energy storage).

The following funding modalities will be supported:

- New
- In-kind

I **Eligibility** for Indonesian Applicants

- Principal Investigator (PI) is an Indonesian citizen, a BRIN or non-BRIN researcher (university or other research institution, either from a business entity or community organization in Indonesia), civil servants or non-civil servants who has a doctoral education qualification and competency in conducting research with international partners;
- Team members may come from across institutions, universities, and/or other research institutions from business entities or independent research institutions;
- Both Principal Investigator and research team members have an experience and expertise relevant to the proposed research and proven by evidence of a track record (portfolio) of research activities;
- One team member could only be participated maximum in 2 proposals (1 proposal as Principal Investigator and 1 proposal as member, or as member in both proposals).

II Support

BRIN will support up to 5 applications. Research funding can be implemented for a maximum period of 3 (three) years based on the results of evaluations each year with a maximum amount of IDR 1,000,000,000 per project/year (including researcher mobility and infrastructure sharing).
List country specific eligible costs:

- Purchase/procurement of chemicals/consumables such as raw materials or production components;
- Honorarium for field workers;
- Domestic travel, directly related to the research activities;
- Indonesian grant could not be used for equipment;
- Mobility of Indonesian and foreign researchers and experts refers to the BRIN researcher mobility scheme (post-doctoral and/or visiting researcher). The Researcher Mobility Scheme is restricted to BRIN researchers only. For Indonesian researchers who will use the Researcher Mobility Scheme, they must engage the BRIN research group.

Please adjust the RIIM Kolaborasi guidelines as a reference for funding from Indonesia.

III How to Apply

The proposal must be written in English and submitted to Directorate of Research and Innovation Funding BRIN by email to dana-risnov@brin.go.id (Subject email: CFP13-eASIA-Topic-Name of PI-Institution of PI) and using the provided template. All documents must be complete and original. The awardee selected proposed funding will be subject to assessment by BRIN reviewer. The amount of funds will be determined through the evaluation process by the reviewer assigned by BRIN. Shortlisted participants would be invited to give presentations if needed.

Application submission and correspondences may send by email to dana-risnov@brin.go.id. The deadline for submitting your proposal is March 8th, 2024. You do not need to submit a proposal if you are merely a team member and not the Lead PI.

Additional application materials are required to be submitted directly to BRIN (email to: dana-risnov@brin.go.id) after the awardee list has been announced by the e-ASIA Secretariat of the Joint Research Program (the e-ASIA JRP).

Detail application process, links to guidance/policy materials can be seen here https://pendanaan-risnov.brin.go.id.

IV Evaluation

Once BRIN has approved the proposal, PI must submit it to the e-ASIA Secretariat for assessment and evaluation based on the general evaluation criteria of the e-ASIA JRP. Applications submitted to the e-ASIA Secretariat will be reviewed according to thepublished e-ASIA JRP evaluation process and criteria.

V Reporting

- The Indonesian PI shall promptly submit a progress report on the status of joint research to BRIN, in accordance to the second term disbursement.
- After completion of the period of joint research, the Indonesian PI shall submit within a month a final report on the results of the joint research to BRIN.

Ethical Clearance and Foreign Research Permit

Researchers and Foreign Parties have to obtain a research permit. To obtain a research permit, Researchers and Foreign Parties must apply for Research Ethical Clearance and foreign research permit request. This application is done through the Research Ethical Clearance information system (https://klirensetik.brin.go.id/)

Material Transfer Agreement

Awardee agree that any tangible research materials required to be taken from

the Republic of Indonesia for research purposes of the approved collaborative project shall be transferred through a Material Transfer Agreement (MTA) between concerned research organizations in strict compliance with the legislation of the Republic of Indonesia.

Intellectual Property

In the event of joint research cooperation, it is the responsibility of the respective member of the collaborating project partners to determine in advance how any exploited IP will be divided amongst the partners in accordance with the prevailing laws and regulations of the respective countries of the institutions Participants and the institutions' policies and procedures. Details of this agreement shall be included in the collaborative agreement.

Genetic Resources and Traditional Knowledge

1. The Parties recognize the importance of the protection of genetic resources and traditional knowledge associated with genetic resources (hereinafter referred to as the "GRTK"). Awardee to carry out any research activities in accordance with the provisions of International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) FAO, the Convention on Biological Diversity (CBD) and other international agreements, particularly taking into account the principle of prior informed consent and of fair and equitable benefit sharing.
2. Details regarding the management of GRTK shall be included in the Collaborative Agreement of any collaborative projects.

Data and Material Management

Data and information resulting from the research activities shall be submitted and stored at the Indonesian national repository (Repositori Ilmiah Nasional) through the page https://rin.brin.go.id/ in accordance with applicable laws and regulations;

Material or specimens resulted from the research activities must be lodged with the BRIN cq. Directorate of Scientific Collection Management.

VI Contact Information

Dr. Ajeng Arum Sari

Director of Research and Innovation Funding

National Research and Innovation Agency

Phone: +62 811-1064-6771

E-mail: dana-risnov@brin.go.id

2) Japan: Japan Science and Technology Agency (JST)

<IMPORTANT>

Japan-based applicants must complete all the requirements designated by JST. Information on additional requirements applied to Japan-based applicants are available at the official domestic call announcement on the JST website.
https://www.jst.go.jp/inter/program/announce/announce_easia_jrp_13th.html
(in Japanese only)

JST is supporting the following topics: Alternative Energy, with particular interest in:

- *Renewable Energy*
- *Energy Storage*
- *Energy Management Systems*

JST can support a maximum of three (3) applications. The following funding modalities will be supported:

- New

I. Eligibility

Any independent researcher personally affiliated with and actively conducting research at a domestic Japanese research institution (or who will fulfil this requirement by the start of the research project), regardless of nationality, is eligible to apply as a Principal Investigator.

Note: “Domestic Japanese research institution” in Japan refers to universities, independent administrative institutions, national/public testing and research institutions, specially authorized corporations, public service corporations and enterprises, etc. that must satisfy predetermined requirements designated by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Please refer to the MEXT homepage for more information:

https://www.mext.go.jp/a_menu/kansa/houkoku/1324571.htm (in Japanese only).

Japan-based researchers from industry are also eligible to apply as a Principal Investigator in the joint research project in the Japan-based team.

Early career researchers who completed his/her doctorate in the last 10 years are strongly encouraged to apply.

II. Support

II-1. Funding Modality

JST will support each Japan-based team with a “new fund” up to 27 million Japanese Yen as direct cost for 36 months. The overhead cost of 30% of direct cost will be added separately. The budget for a project may differ each year, depending on the content of activities. The amounts will be adjusted each year due to the budgetary limitations for this program.

II-2. Expenditure/costs eligible for funding

This program is designed to support expenses related to cooperation by a Japan based researcher with their counterparts, such as expenses for travel and/or conducting seminars/symposia. Funding provided within this call is intended to enhance the capacity of the applicants to collaborate. Funding will therefore be provided mainly in support of collaborative activities but may also cover some of the local research costs that are necessary for the collaboration. In principle, eligible direct costs are those costs directly necessary for accomplishing the research, indicated below. Please refer to the guidance documents available at the following link for further details of eligible direct costs:
https://www.jst.go.jp/inter/research/contract/contract.html (in Japanese only).

1. Eligible Direct Costs:

i) Facilities, Equipment and Consumables: costs of research equipment, spare parts, prototypes.

ii) Travel Costs: travel costs and associated living expenses of the project members registered in the project plan, and travel costs of inviting external experts.

iii) Salaries and Honoraria: salaries of the researchers, temporary staff, PhD students, post-docs, etc., who are hired for the research, and other costs such as honoraria for invited lecturers.

iv) Others: costs for organizing meetings in Japan including rental costs for the venue, food & beverage (excluding alcohol) costs and other costs which are deemed to be necessary for organizing the event. Expenses for creating software, renting or leasing equipment, transporting equipment, etc.

2. Overhead cost shall be 30% of direct costs.

Note: Please refer to the following link for the provisions regarding indirect costs:

https://www8.cao.go.jp/cstp/compefund/kansetsu_sikkou.pdf (in Japanese only).

II-3. Payments

Payments will be made according to a contract for commissioned research entered into between JST and a “Domestic Japanese Research Institution”. The contract for commissioned research will be renewed each year over the cooperative research period. Since the contract is agreed on condition that all administrative procedures related to this project will be handled within the institution, the PI should consult with the department in charge at his/her institution.

III. How to Apply

Applicants of each Japan-based team are required to complete necessary submission as specified below.

III-1. Submission of Application Forms (Form 1E-9E) (from the Lead PI)

Proposals must be submitted by e-mail to the e-ASIA JRP Secretariat.

III-2. Additional Application Forms (For Japan-based applicants only)

In addition to the common Application Forms in English (Form 1E-9E), **Japan based applicants are required to complete and submit additional application forms in**

Japanese (Form 1J and 2J) to JST by "e-Rad" (https://www.e-rad.go.jp/index.html).

Form 1J and 2J are available from the JST website:

https://www.jst.go.jp/inter/program/announce/announce_easia_jrp_13th.html

(in Japanese only)

The deadline for the "e-Rad" submission: 14:00 (Japan Standard Time) 29th March 2024

IV. Evaluation

Independent Committees consisting of experts will evaluate all proposals. Based on the results of the evaluation, a common decision will be decided jointly among Member Organizations participating in the call regarding funding of the selected proposals.

IV-1. Evaluation Criteria

The following evaluation criteria, incorporated with the e-ASIA JRP evaluation criteria (see IV-2. Evaluation Criteria in the Call Guideline), will apply to each application:

i) Conformity with Program Aims and Designated Research Fields
The proposed activity shall conform to the aims of the program and the research fields that the program designates. In addition, the applicants shall already have a good research foundation for their proposed activity.

ii) Capability of Principal Investigators
The principal investigators of collaborating countries shall have the insight or experience for pursuing the activity and the ability to manage the cooperation and reach the project goals during this program's period of support. The call aims to take into account the potential of early career researchers who have completed their doctorate in the last 10 years in this role.

iii) Effectiveness and Synergy of Cooperative Research Project
The proposed research activity shall be eminent, creative and at an internationally high level in an attempt to produce a significant impact on the development of future science and technology or to solve global and regional common issues or to create innovative technological seeds that can contribute to the creation of new industries in the future. Moreover, proposed research activities that can be expected to create synergy through collaborative research with the counterpart institution will be preferred. Such synergy could be attained through, for example, the acquisition and/or application of knowledge, skill and/or know-how of the counterpart researcher.

iv) Validity of Research Plan
The sharing of research activities with the counterpart research institution and the planning of research expenses shall be adequate to realize the proposed research activity.

v) Effectiveness and Continuity of Exchange
Activities characterized by the following examples shall be involved to enhance

sustainable research exchange and networking.

Nurturing of researchers through human resource exchange.

Sustainable development of research exchange with the counterpart countries initiated by this activity.

Enhancing the research network between collaborating countries including researchers other than the research leader and members of this activity.

Improving the presence of science and technology in Japan and the counterpart country.

vi) Validity of Exchange Plan

The planning of exchange activities and their expenses with the counterpart research institute shall be adequate to realize the proposed research activity.

V. Reporting

V-1. Progress report to JST

At the end of each fiscal year, the PI of the Japan-based team shall promptly submit an annual progress report on the status of research exchange, and the institution with which the PI is affiliated shall promptly submit a financial report on research expenses to JST.

V-2. Final report to JST

After completion of the period of joint research, the Japan-based team's PI shall submit within two months a final report on the results of the joint research. The final report shall include a general summary compiled jointly by all members of the Japan-based research group. The institution with which the PI is affiliated shall submit a financial report on research expenses within the same time frame.

VI. Contact Information

Mr. Shinji Otsuka, Dr. Takumi Katsumata

Department of International Affairs, Japan Science and Technology Agency (JST)

Tel: +81(0)3-5214-7375

E-mail: easiajrp@jst.go.jp

3) New Zealand: Ministry of Business, Innovation and Employment (MBIE)

The New Zealand Ministry of Business, Innovation and Employment (MBIE) is seeking collaborative proposals related to any of the above listed subtopics in the field of 'alternative energy'.

I. Eligibility

For a proposal to be assessed it must meet the eligibility criteria set out below. Proposals that do not meet all of these criteria will be declined for funding on eligibility grounds:

- The proposal must be made by a New Zealand-based research organisation or a New Zealand-based legal entity representing a New Zealand-based research organisation.
- The New Zealand Principal Investigator must be employed by a New Zealand-based research organisation, or a New Zealand- based legal entity representing a New Zealand-based research organization.
- The proposal must not be made by a department of the public service as listed in Schedule 2 of the Public Service Act 2020.
- Proposals must not benefit a Russian state institution (including but not limited to support for Russian military or security activity) or an organisation outside government that may be perceived as contributing to the war effort.
- In addition to the proposal submitted to the E-Asia secretariat by the project Principal Investigator, the New Zealand applicant must submit a separate proposal through MBIE's investment portal before the closing date on 2 April 2024, 12:00 PM (New Zealand Standard Time) and meet all the administrative requirements.
- Any additional eligibility criteria published in the full details of the opportunity via the MBIE Catalyst Fund Website.

II. Support

MBIE's Catalyst Fund will support up to three collaborative projects of a value up to NZD$400,000 (excluding GST) over three years. MBIE funding will only be provided for costs related to the New Zealand research team.

III. How to Apply

In addition to the proposal submitted to the e-ASIA secretariat by the project Principal Investigator, the New Zealand applicant must submit a separate proposal through MBIE's investment portal. The link to the portal and full details of the opportunity can be found via the MBIE Catalyst Fund Website.

IV. Reporting

Specific details of reporting requirements can be found on the MBIE Catalyst Fund Website.

V. Contact Information

To discuss this opportunity applicants can email: internationalscience@mbie.govt.nz

4) Philippines: Department of Science and Technology (DOST-PCIEERD)

The national call announcement will be published in the DOST-PCIEERD website: www.pcieerd.dost.gov.ph

I. Eligibility Requirements

(1) Any Filipino, public, or private entity with proven competence may apply for funding support if projects fall under the specific research areas.

(2) Filipino researchers should be connected with any public and private universities and colleges and Research and Development Institutes. The eligibility of the Philippine Principal Investigator shall be determined by DOST-PCIEERD based on his/her readiness in terms of technical, managerial, financial, and marketing capabilities (if necessary). As such, the proponent shall submit documents/proof of the following: credentials/proof of capability, track record, and endorsement of his/her institution, must not have any existing accountability with DOST (Department of Science and Technology) and its agencies particularly technical and financial reports, and must not have pending administrative or criminal case involving financial transactions. The Philippine Principal Investigator must possess at least a master's degree in a relevant field.

II. Support

Three (3) projects could be supported under this call. Budget range of US $300,00 – 310,000 per project for three (3) years shall be provided by DOST-PCIEERD to support the collaborative projects.

III. Application

Interested parties should submit their proposals using the DOST-GIA proposal format through the DOST e-proposal portal, http://dpmis.dost.gov.ph before the Closing Date on **29 March 2024, 5:00PM**: Together with the proposal, DOST-PCIEERD requires submission of a formal letter of intent from the applicant and an endorsement from the authorized head of organization. The authorized head of the organization will also be the principal signatory of their organization for the research agreement award.

IV. Evaluation of Project Proposals

Review teams (Project Managers, Technical Experts Team, or Technical Panel, and DOST-PCIEERD Management Team) will evaluate each proposal based on the following criteria:

Alignment to the Call, no duplication with previous or existing researches, scientific merit, technical feasibility, soundness of methodology, financial viability (commensurate to intended output and potential impact), potential socio-economic merits, environmental impact (e.g. does not pose significant adverse to the environment or will/can improve environmental conditions), and marketability (e.g. potential adoption/use of the industry (manufacturer) and other partners). Each proposal will be given a numerical score and will be ranked accordingly. Preliminary

funding recommendations will be forwarded to the DOST-PCIEERD Governing Council based on this ranking.

The DOST-PCIEERD Governing Council, based on the rankings and preliminary recommendation of the DOST-PCIEERD evaluation teams, will make final funding decisions for the DOST-PCIEERD counterpart before forwarding the proposals to the joint panel of the participating Member Organizations and the e-ASIA JRP Board Meeting for final funding decisions.

V. Reporting

Semi-annual progress reports and a detailed final report will be required. Semi-annual progress reports summarize technical progress, planned activities for next semester and summary of expenditures. The final report shall be submitted within 90 calendar days after the performance period is completed. Required forms are downloadable from the DOST-PCIEERD website and may be provided by the DOST-PCIEERD upon the awarding of the agreement to eligible applicants.

VI. Contact Information

DR. ENRICO C. PARINGIT
Executive Director
Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD)
Department of Science and Technology (DOST)
4th and 5th Levels, Science Heritage Building, DOST Compound,
Gen. Santos Ave., Bicutan, Taguig City
E-mail: oed@pcieerd.dost.gov.ph

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

I. Eligibility for Thai applicants

The applicants must be researchers and/or university professors/instructors who work in public/non-profit organization research institute or university in Thailand and are competent in conducting research with international partners.

II. Support

The total budget for the Thai researcher over a full 3-year period is up to **5,000,000 THB per project**. The budget for a project may differ each year, depending on the content of activities and compliance with PMU-B financial guideline (please find details via PMU-B website: www.pmu-hr.or.th)

III. Proposal Application Process

a. Thai applicants must submit the full proposal to PMU-B through **NRIIS: https://nriis.go.th.**
b. Thai researchers must fill in the **proposal details** in the NRIIS system.
   - For the budget section, please fill in the budget details that the Thai applicant will be requesting from PMU-B.
   - Thai applicants must attach documents 1) Full proposal, 2) All Thai and International research partners endorsement letters, 3) Any additional document.
c. Thai applicant's home institution must click to endorse the submission in the NRIIS system.
d. Lead PI must also submit proposal to the e-ASIA JRP Secretariat **email: easia_secretariat@jst.go.jp.**
e. All submission process must complete before the Closing Date on **29 March 2024.**

IV. Evaluation of Project Proposals

Proposals will be peer-reviewed and evaluated by a committee. The final selection will be done by the international selection committee of e-ASIA.

Evaluation Criteria

To be funded, proposals must be internationally competitive. It should lead to the advancement of the research field, or novel applications or increase of research capacity.

Key evaluation criteria are:

- Significance and impact of the research
- Scientific Rationale: novelty, importance and timeliness of the research

- Capabilities of the research team
- Design and feasibility of the project plan
- Partnership: including strength and clarity of collaborations and opportunities
  provided, quality of the project management structure proposed
- Quality and suitability of the research environment and of the facilities
- Ethical considerations and governance arrangements

V. Reporting

- Every six months, the Thailand PI shall promptly submit a progress report on the status of joint research to PMU-B
- After completion of the period of joint research, the Thailand PI shall submit within three months a final report on the results of the joint research to PMU-B.

VI. Contact Information

Dr. Angkana Jantanaprasartporn

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

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General inquiries

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