

# Establishing the basic MRV environment to scale up GHG reduction, as well as stakeholder coordination to scale up actions on the ground

**Cooperation outline** : Enhancing capacity of ASEAN member states to implement MRV and providing foundation for enhanced implementation of the Paris Agreement, in cooperation with the FAO, as well as planned feasibility studies on MRV technologies of Sagri utilizing satellite data and AI in Vietnam and other countries.

**Purpose of the cooperation** : To contribute to GHG emission reductions by providing a foundation for enhanced implementation of the Paris Agreement with respect to the agricultural sector and expanding the potential for using carbon credits will be expanded.

**URL** : [https://www.maff.go.jp/j/kokusai/kokkyo/r7oda\\_youkyu/attach/pdf/r7oda\\_youkyu-8.pdf](https://www.maff.go.jp/j/kokusai/kokkyo/r7oda_youkyu/attach/pdf/r7oda_youkyu-8.pdf)



Water-level monitoring using satellite data



Water-level monitoring system  
(rendering image)

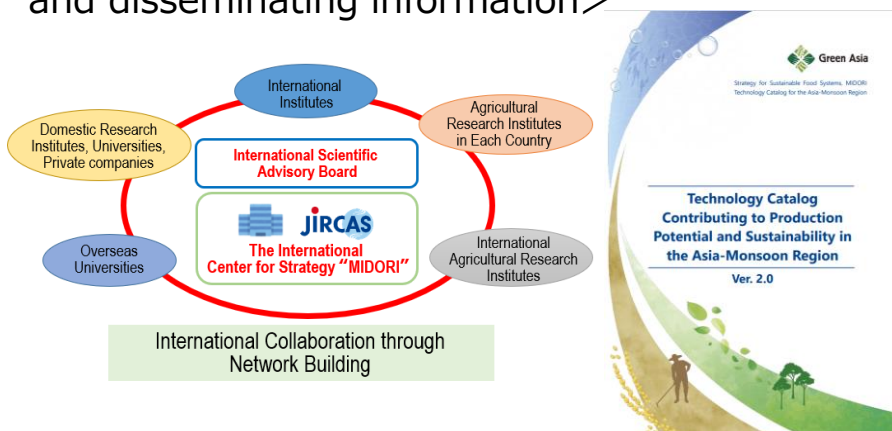


Expert workshop on GHG reduction of  
agricultural sector

# Dissemination of technologies that contribute to climate change mitigation and sustainable agriculture and joint research for their application in the Asia-Monsoon region

- **Cooperation outline** : In order to promote the deployment of technologies that contribute to climate change mitigation and sustainable agriculture, information sharing and joint research in various sites have been conducted to disseminate technologies scalable in the Asia-Monsoon region.
- **Purpose of the cooperation** : Implementation of GHG emission reduction and other technologies that contribute to climate change mitigation and sustainable agriculture in the Asia-Monsoon region will be promoted.
- **Other points** : Vice Minister of Agriculture, Forestry and Fisheries, Japan, introduced Technology Catalogue in his speech as a representative of Japan at FAO Regional Conference for Asia and the Pacific. Technology Catalog has been also introduced at various ASEAN meetings.
- **URL** : <https://www.jircas.go.jp/ja/greenasia>

<Establishing an international cooperation system and disseminating information>



<Expansion of application area for the technology to reduce GHG emissions from paddy fields>



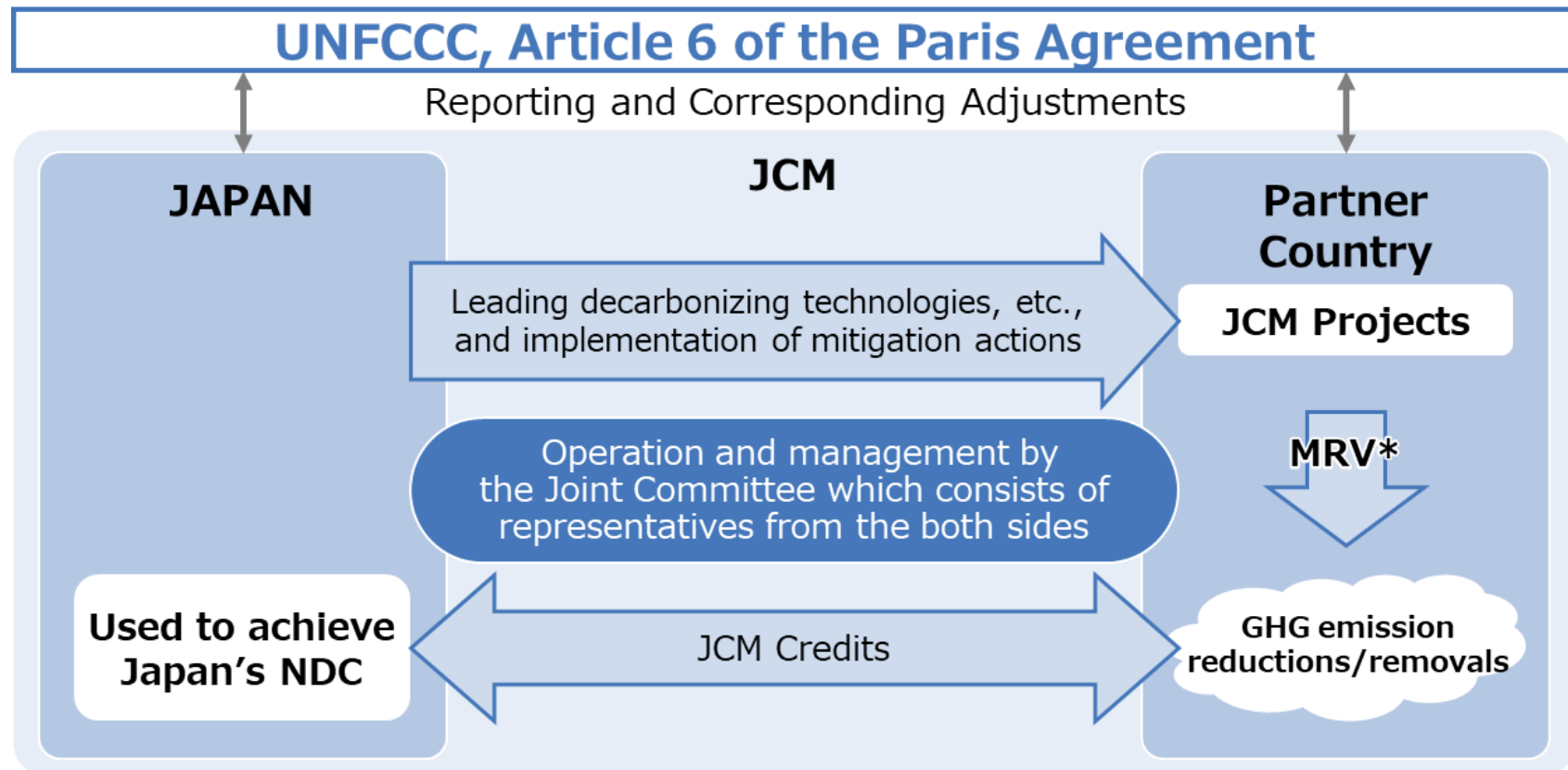
<Cultivation to demonstrate Biological Nitrification Inhibition (BNI)-enabled wheat>



# Establishment of an environment for the utilization of JCM with respect to mitigation efforts in the agriculture sector

**Cooperation outline** : Establishing an environment for the utilization of the Joint Crediting Mechanism (JCM) with respect to mitigation efforts in the agriculture sector, including through providing for a system for technical reviews, with the aim of disseminating Japanese technologies in the Asian monsoon region.

**Purpose of the cooperation** : To contribute to GHG emission reductions and increased income of farmers in partner countries, as well as to the achievement of reduction targets under the Paris Agreement (NDC) of partner countries and Japan.

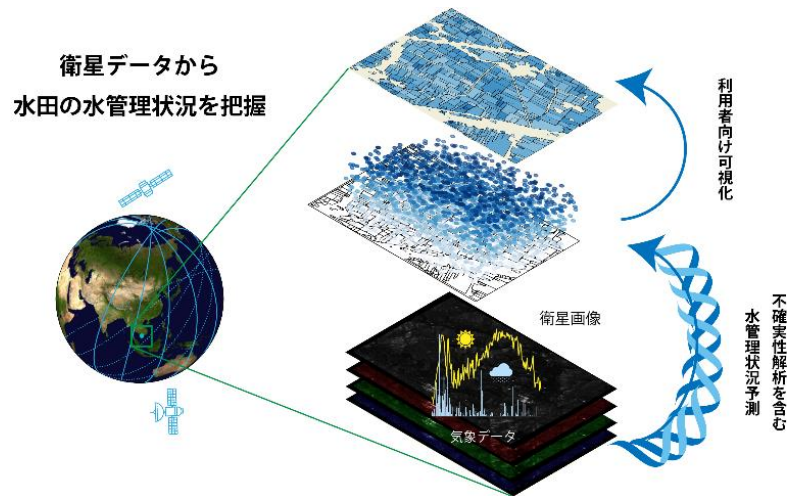




**Cooperation outline** : Implementing feasibility studies of technologies (including MRV through satellite monitoring and high-performance biochar) contributing to the reduction of greenhouse gas emissions for wider dissemination in the ASEAN region (supported by Nomura Research Institute and Oriental Consultants Global), as well as establishing a consulting counter for companies intending to disseminate their technologies in the ASEAN region.

**Purpose of the cooperation** : To accelerate formulation of concrete projects to disseminate climate-smart practices in the ASEAN region, through mobilization of private finances.

## Examples of technology conducting feasibility study



MRV through satellite monitoring



High-performance biochar



# APAC-wide GHG Accounting and Carbon Offsetting Collaboration Agreement

**Cooperation outline** : Signed a collaboration agreement with TEM, a local Australian company, for GHG calculation and Carbon Offsetting in APAC region.

**Purpose or objectives of MOU** : Jointly support the supply of carbon credits and RECs for the promotion of corporate GHG accounting and emissions offsetting across APAC.



<u>Solution</u>	<u>Region coverage</u>
<b>Carbon Offsetting</b> <ul style="list-style-type: none"> <li>•Consulting</li> <li>•Project Management</li> <li>•Certificate</li> </ul>	<b>Oceania</b> <ul style="list-style-type: none"> <li>•Australia</li> <li>•New Zealand</li> </ul>
<b>GHG accounting</b> <ul style="list-style-type: none"> <li>•System integration</li> <li>•Consulting</li> </ul>	<b>Asia</b> <ul style="list-style-type: none"> <li>•East Asia</li> <li>•ASEAN</li> </ul>

# Hitachi Energy's HVDC technology to power Marinus Link, toward Australia's Net Zero ambitions

- **Project outline** : Hitachi Energy selected to supply Marinus Link Pty Ltd a high-voltage direct current (HVDC) project, which will augment the connection capacity up to 1,500MW between mainland Australia and Tasmania's grid.
- **Objectives** : To transmit clean renewable energy including Tasmania's world-class wind and hydro storage resources. In line with Australia's Net Zero ambitions, this link will result in saving up to 140 million tons of CO<sub>2</sub> equivalent emissions by 2050.
- **URL** : [Hitachi Energy's HVDC technology to power Marinus Link, a key step toward Australia's Net Zero ambitions \[Hitachi Energy Ltd.\] : May 23, 2024](#)



HVDC Light® Valve Hall

**Cooperation outline** : Comprehensive MOU focusing on Natural Gas, Hydrogen, Ammonia and CCS.

**Purpose or objectives of MOU** : Strengthening the relationship between JOGMEC and Northern Territory, resource-rich region with high potential for Hydrogen, Ammonia and CCS.

**Other points** : JOGMEC and INPEX commenced joint research in 2022 to assess the CO2 storage potential in the Bonaparte Basin, aiming for GHG emissions reduction at Australian LNG operation.

URL : [Memorandum of Understanding signed by JOGMEC and Northern Territory Government : News Releases | Japan Organization for Metals and Energy Security \(JOGMEC\)](#)



<MOU signing of JOGMEC and Northern Territory, Australia>



AZEC  
Asia Zero Emission Community



# Heads of Agreement for investment and offtake from Murchison Green Hydrogen Project in Western Australia

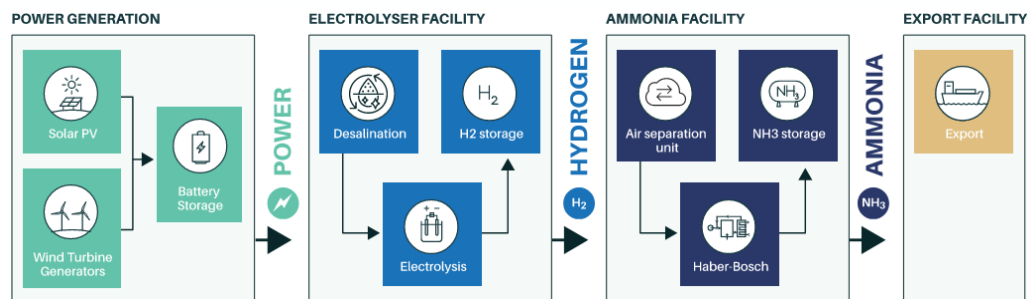
Sumitomo Corporation  
Enriching lives and the world

CIP  
Copenhagen Infrastructure Partners

**Outline :** Murchison Hydrogen Renewables Pty Ltd, an Australian subsidiary of Copenhagen Infrastructure Partners, and Sumitomo Corporation have entered into a Heads of Agreement for the investment to and offtake from Murchison green ammonia project in Western Australia.

**Purpose :** The project is one of the most advanced gigawatt-scale Power to Ammonia projects to produce competitive green ammonia in Western Australia, using world-class onshore wind and solar resources with a complementary production profile. Both parties will collaborate together to build supply chain and help decarbonize Japanese hard-to-abate industries.

## ▼ Supply Chain Structure

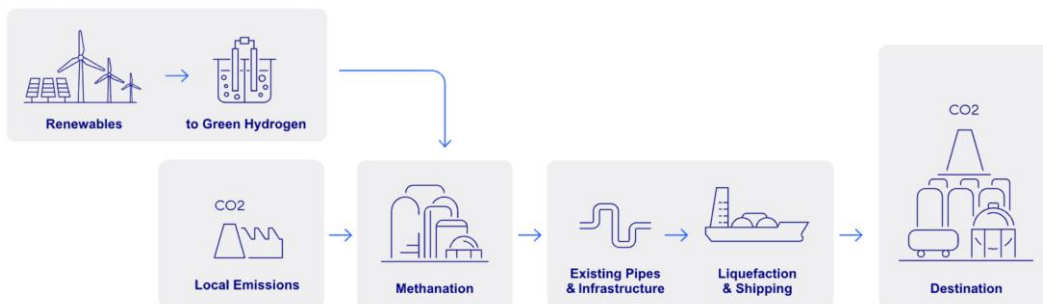


## ▼ Image of Large-scale ammonia production plant



# Joint Study Agreement for Pre-FEED Study on e-methane production in Cooper Basin

- **Overview** : Following the completion of Feasibility Study, Santos, Tokyo Gas, Osaka Gas Australia and Toho Gas signed the Joint Study Agreement in July 2024 to conduct Pre-FEED activities for the e-methane production (methanation) in Moomba, in the Cooper Basin.
- **Purpose** : Produce and export e-methane to Japan with utilization of abundant renewable energies in Australia.



# The 6th ASEAN-Japan Smart Cities Network (ASCN) High-level Meeting's Document of Achievement (Smart Cities Cooperation with the ASCN)

- **Cooperation outline** : The 6th ASEAN-Japan Smart Cities Network High-Level Meeting will be held in October 2024 with the theme of 'GX'. The participants, government officials and private companies of ASEAN and Japan, will share the common understanding on promoting smart cities contributing to 'GX', through the individual case studies. The outcome of the Meeting will be presented as a document of achievement.
- **Purpose or objectives of document** : Based on the consensus document, the government promotes smart cities contributing to a decarbonized society by sharing local expertise and technologies, providing networking opportunities among the public and private sectors, and supporting the formation of specific projects, cooperating with the ASEAN Smart Cities Network.
- URL : <https://ascnjapan2024.jp/>

## <The 5th ASEAN-Japan Smart Cities Network High-Level Meeting > 【Practical example of GX】

※Held with the theme of 'Resilience' at the 5th Meeting



Greeting from Minister Saito



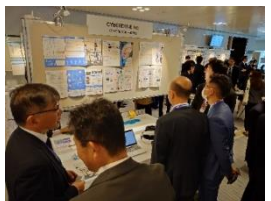
Greeting from Secretary-General of ASEAN Kao



Confirmation of Document of Achievement  
(Confirmed cooperation to realize smart cities regarding resilience)



Advisor to the Prime Minister Masafumi Mori, Keynote Speech



Company's booth



Company's presentation

Project of Renewable Energy and Cold Chain in Seafood Industry in Makassar, Indonesia  
(Conducted FS survey through Smart JAMP in FY2021)

○Business Objectives and Current Status :

- Developed a solar-powered electricity supply to contribute to the Indonesian government's goal of carbon neutrality and improve access to electricity on remote islands.
- Contributed to the development of regional ice making business and seafood industry by combining the electric power business with the cold chain business.
- Groundbreaking ceremony by business entities (Oriental Consultants Global Co., Ltd. and others) in February 2024.

Pilot Project Site





# Promotion on climate change adaption and mitigation measures through agricultural and rural development in the Asian Monsoon region

- **Cooperation outline** : The cooperation is subsidized by Ministry of Agriculture, Forestry and Fisheries, and the details are as follows:
  - (i) Introducing advanced agricultural water management such as AWD using ICT-based water management.
  - (ii) Improving rainwater storage in paddy fields by installing runoff adjustment outlets as "Paddy Field Dam".
- **Purpose of the cooperation** : The expected effects are as follows:
  - (i) AWD reduces GHG emissions from paddy fields.
  - (ii) ICT-based water management reduces agricultural labor and water usage.
  - (iii) "Paddy Field Dam" reduces flood damage in downstream areas.

The following demonstrations are scheduled to start in 2024:

## [Implementing Agency: Japan Water Agency]

- **Cambodia** (Kampong Chhnang Province)
  - (i) AWD using ICT-based water management
  - (ii) "Paddy Field Dam" by installing runoff adjustment outlets
- **Lao PDR** (Vientiane City)
  - (i) AWD using irrigation faucet with a float valve
  - (ii) "Paddy Field Dam" by installing runoff adjustment outlets

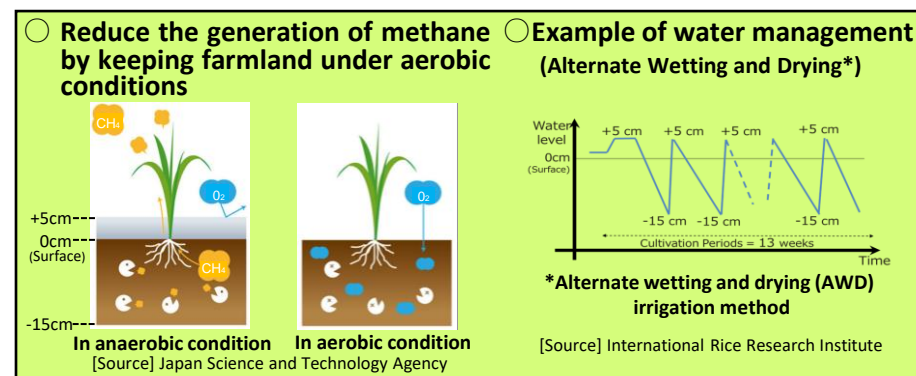
## [Implementing Agency:

## Agricultural Development Consultants Association]

- **Viet Nam** (Hai Phong City)
  - (i) AWD using ICT-based water management
  - (ii) Underground drainage improvement using "Cut Drain"



ICT-based Water Management System



- **Cooperation outline** : In Cambodia, where methane emitted from rice paddies is a major source of greenhouse gas emissions, the project aims to establish a locally appropriate intermittent irrigation method, thereby contributing to the achievement of Cambodia's NDC (greenhouse gas reduction target) determined by the country itself.
- **Purpose of the cooperation** : Through international joint research by Japanese and Cambodian researchers aiming to solve global-scale issues in the environmental field, the project aims to create innovations and implement technologies in society in line with local needs.
- **URL** : <https://www.jircas.go.jp/en/reports/2024/r20240402>

(Principal Investigator)  
JIRCAS

(Participating org.)  
NARO, Tokyo Gakugei Univ  
Tokyo Agric. Univ,  
Hokkaido Univ.



Royal Univ.  
of Agriculture  
Inst. Of Technology  
of Cambodia

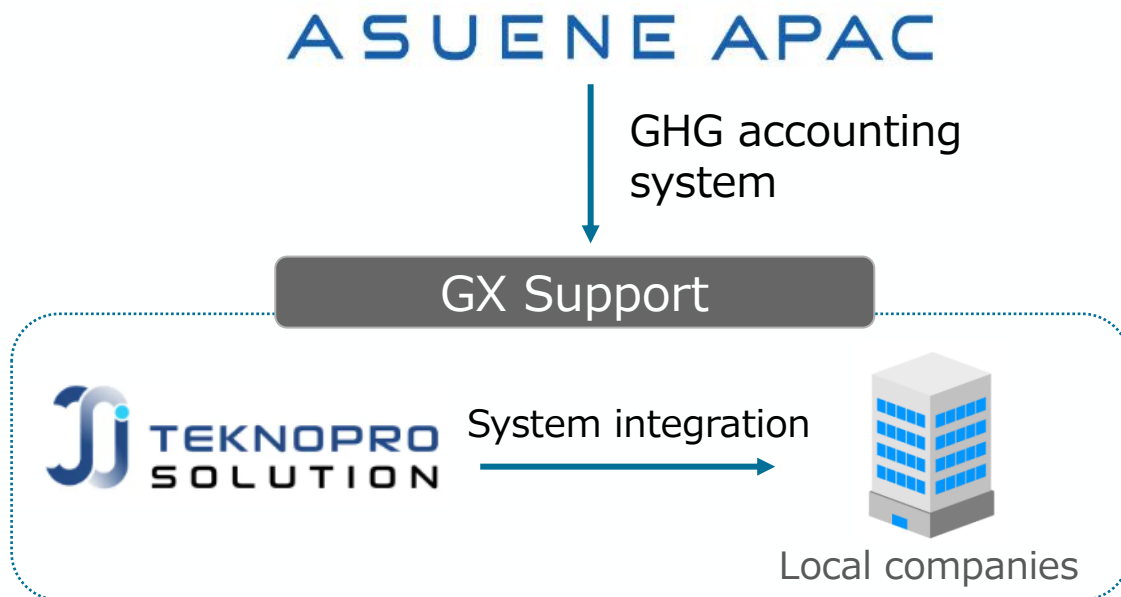


# Cooperation agreement to promote GX management with GHG calculation

**Cooperation outline** : Signed a collaboration agreement with Teknopro, a local Indonesian company, for GHG calculation of ASUENE.

**Purpose or objectives of MOU** : Promoting the use and implementation of ASUENE's GHG calculation solutions in companies that have implemented location-based services and ERP in Indonesia.

**URL** : <https://prtimes.jp/main/html/rd/p/000000367.000058538.html>



Signing ceremony





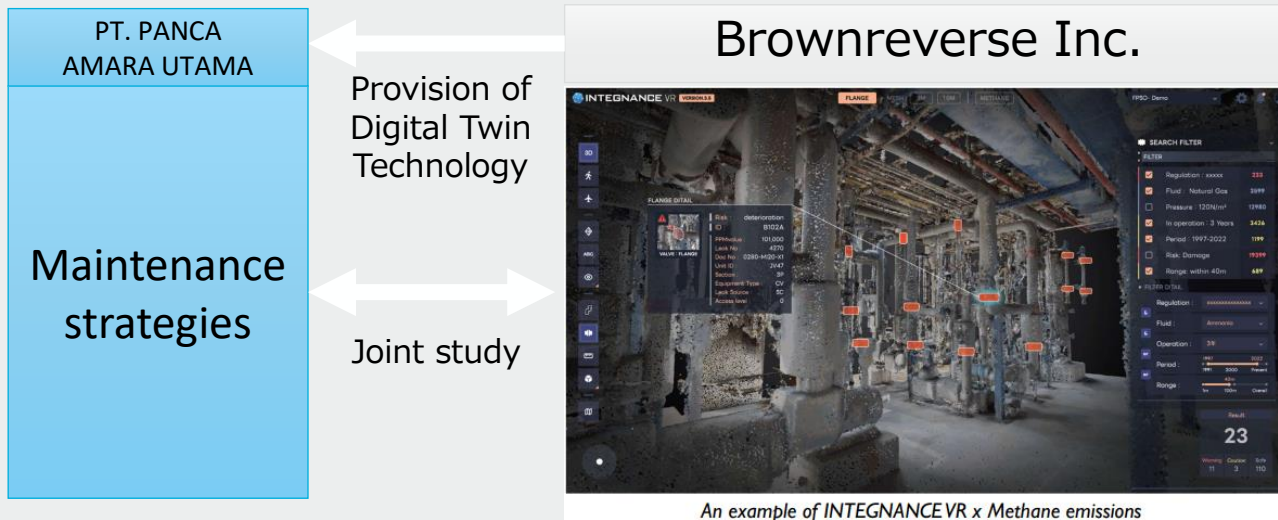
# Digital Twin Based Assessment and Visualization of Environmental Footprint

**Cooperation outline :** Brownreverse Inc.(BRS) and PT. PANCA AMARA UTAMA(PAU) aim to collaborate on the validation of “environmentally conscious maintenance” at PAU's ammonia plant using BRS’s technology. This cooperation involves providing and utilizing 3D models and methane emission data to study the environmental impact.

**Purpose or objectives of MOU :** To validate the effectiveness of environmentally considerate maintenance using Digital Twin technology. To set an example that expands maintenance practices considering environmental sustainability and minimizing environmental impact.

- Project Scheme**

## Step 1



## Step 2

**To expand practices that consider and minimize environmental impact in the maintenance of industrial facilities.**

- Future Schedule**

Step 1 (until March 2025): Visualize methane emissions on the digital twin and study maintenance strategies.

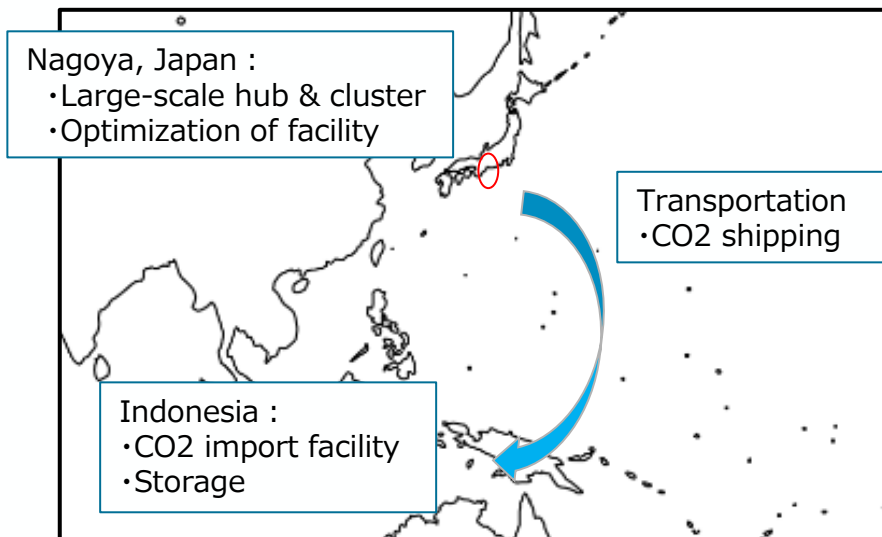
Step 2 (from April 2025): Expand the role model of "environmentally conscious maintenance."

# Cooperation between Chubu Electric Power Co., Inc. and BP Berau Ltd. on international CCS hub & cluster model

**Cooperation outline :** Following the successful completion of the Nagoya CCS feasibility study this year, both parties would like to further collaborate to explore a hub & cluster approach to a CCS project. The parties will explore the necessary industry collaboration for cost optimization across the value chain and development of business models to enable commercial CCS projects from Nagoya, Japan to Tangguh, Indonesia.

**Objectives :** To evaluate potential opportunities which enable a commercially viable CCS project to support decarbonization through cross-border CCS from Nagoya, Japan to Tangguh, Indonesia.

Map of project



Result of Nagoya CCS FS

CO2 Volume	5-20 MTPA (toward 2050)
CO2 Vessels	Nearly 20 vessels (50k-80k cbm) (toward 2050)

Scope of cooperation

- ◆ Deepening engagement with industry
- ◆ Identification of legal requirements for large-scale hub & cluster
- ◆ Identification of possible business models including potential incentives and funding models required to allow for a commercial CCS project
- ◆ Optimization of onshore infrastructure
- ◆ Optimization in large size of CO2 liquefaction and shipping
- ◆ Optimization in procurement and operation of CO2 vessels











# Memorandum on the roadmap for CCO/SAF Projects derived from non-standard coconuts with the Indonesian National Research and Innovation Agency

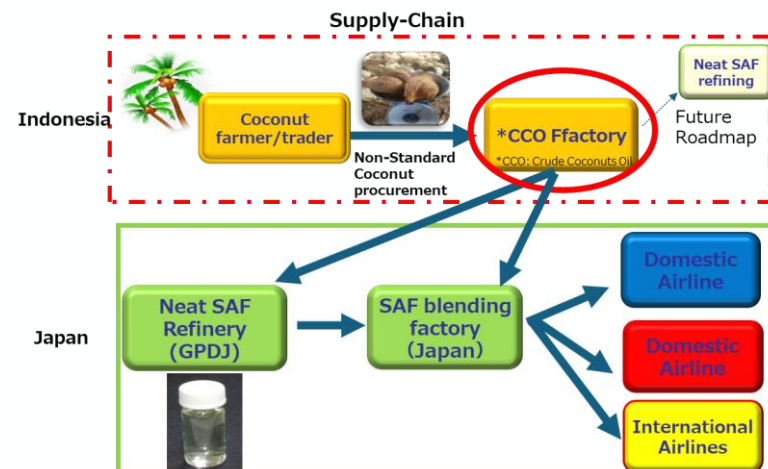
**Cooperation Outline:** The roadmap for establishment for a Crude Coconuts Oil (CCO) factory derived from non-standard coconuts and SAF project are developed by Indonesian National Research and Innovation Agency (BRIN), Green Power Development Corporation of Japan (GPDJ), and Indonesian ABE Corporation (ABE, a company specializing in agro and biofuel innovation, production, and sales). This roadmap will also include initiatives aimed at contributing to greenhouse gas reduction benefits for both countries.

**Significance and Objectives of this MOU:** This MOU aims to establish a CCO factory for SAF in Indonesia, led by the Japanese side, and export the produced raw materials for the SAF project in Japan. This initiative will secure the raw materials needed for domestic SAF fuel production. Additionally, utilizing the technology and expertise from Japan's SAF project, technical support will be provided to Indonesia's SAF project in the future.

**Additional Information:** A working group (WG) will be established comprising BRIN, the project promoters GPDJ /ABE, and related parties concerned in Indonesia. This WG will conduct regular quarterly meetings to advance the project. This MOU is scheduled to be signed among these three parties in July in Jakarta.

**URL :** [www.brin.go.id](http://www.brin.go.id) (BRIN/Badan Riset dan Inovasi Nasional)  
<https://abe.biz.id> (PT. ABE/ ABE Indonesia Berjaya; Indonesian private company)  
<https://gpdj.jp/saf> (GPDJ, Japan)

Definition of Non-Standard Coconut			
too small	Sprouted	Cracked	Rotten
			
			
[reference] Standard Coconut			
			













# MOU on cooperation for the CCO business for feed stock of SAF derived from Non-Standard Coconuts with the Central and Local Governments of Indonesia

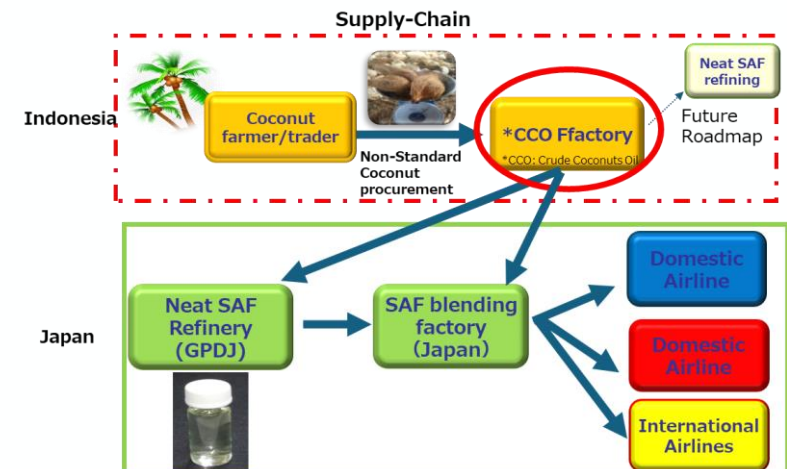
**Overview of Corporate Partnership:** Green Power Development Corporation of Japan (GPDJ) and IJBNet (an Indonesian partner company) will establish a Crude Coconut Oil (CCO) plant in South Sumatra, which will be used as a feed stock for Sustainable Aviation Fuel (SAF). This project will be promoted in cooperation with Coordinating Ministry for Economic Affairs of Indonesia (Deputy Minister for Agribusiness) (CMEA) and Government of South Sumatra (GSS). CMEA, GSS, GPDJ and IJBNet jointly agree to promote this project.

**Significance and Aim of the Cooperation:** CCO plant will be established under Japanese leadership, and the feed stock will be exported to Japan for SAF production. Additionally, Japan will provide technical support to Indonesia's SAF business using the technology and expertise developed in Japan.

**Additional Information:** Using the CLS (Closed Loop System) program promoted by Coordinating Ministry for Economic Affairs, the project will be implemented with the supports of Indonesian Central and Local Governments for the development of logistics facilities from plantations to the CCO plant in South Sumatra. The project will be established jointly with local partner companies including IJBNet.

**URL :** <https://www.ekon.go.id> (CMEA/Coordinating Ministry for Economic Affairs)  
<https://www.sumselprov.go.id> (Government of South Sumatera Province)  
<https://ijb-net.org> (IJBNet/ Indonesia Japan Business Network)  
<https://gpdj.jp/saf> (GPDJ)

Definition of Non-Standard Coconut			
too small	Sprouted	Cracked	Rotten
			
			
[reference] Standard Coconut			
			





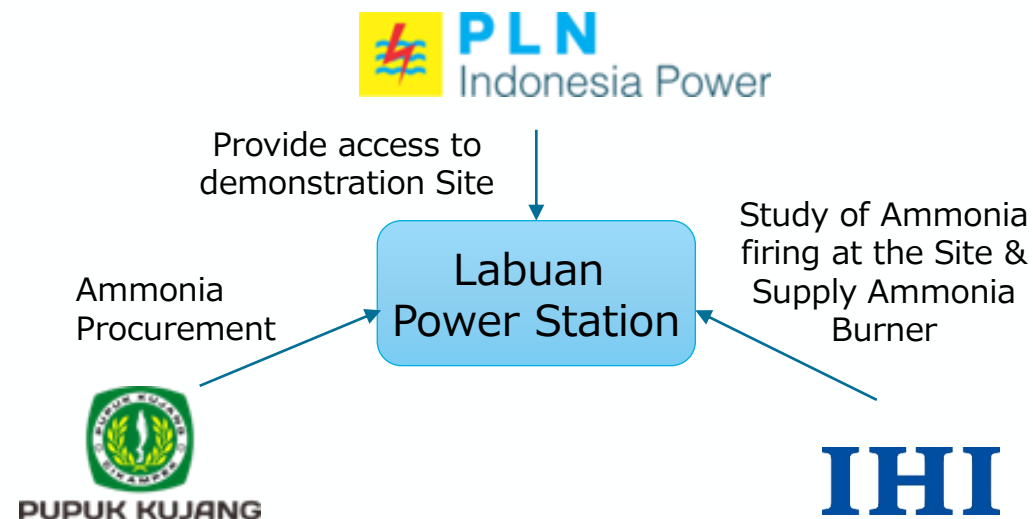
**Cooperation outline** : To conduct a study involving the entire ammonia value chain from the supply to combustion of green ammonia, including demonstration at the Labuan coal-fired power plant (“Site”). PT PLN Indonesia Power will provide access to the Site, PT Pupuk Kujang will handle the procurement of ammonia, and IHI will be responsible for studying ammonia combustion and supplying an ammonia burner for demonstration.

**Purpose and Objective of MOU** : To contribute to achievement of carbon neutrality in Indonesia by studying on the entire ammonia value chain and on the application of ammonia combustion which is one of the decarbonization options at coal-fired power plants.

## <Demonstration Site>



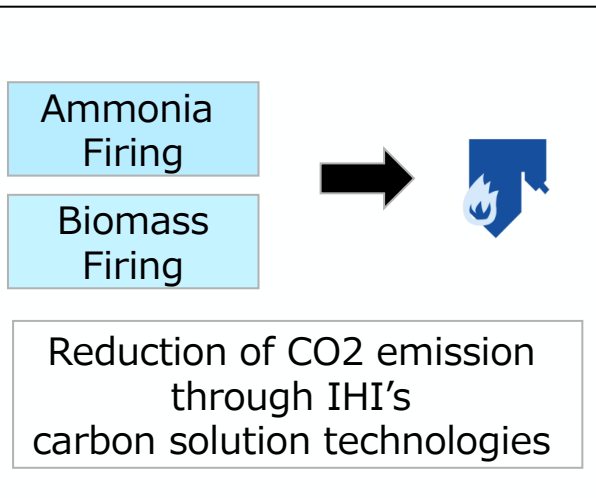
## <Project Scheme>



**Cooperation Outline** : To conduct a study and plan a decarbonization roadmap including CO2 reduction plan through ammonia/biomass combustion at the coal-fired power plant owned by PT PLN Nusantara Power ("PNP").

**Purpose and Objective of MOU** : To contribute to achievement of carbon neutrality in Indonesia through discussing and planning feasible decarbonization map with PNP.

## <Project Image>



Plan  
Decarbonization  
Map to PNP's  
power plant



# MOU among 3 companies for Feasibility Study for development of CCGT Power Plant in Indonesia

**Cooperation outline** : To achieve a future carbon-neutral and net-zero society in Indonesia, Electric Power Development Co., Ltd., PT Adaro Power, and Itochu Corporation will conduct FS to develop a Combined Cycle Gas Turbine (CCGT) power plant in Central Java, Indonesia.

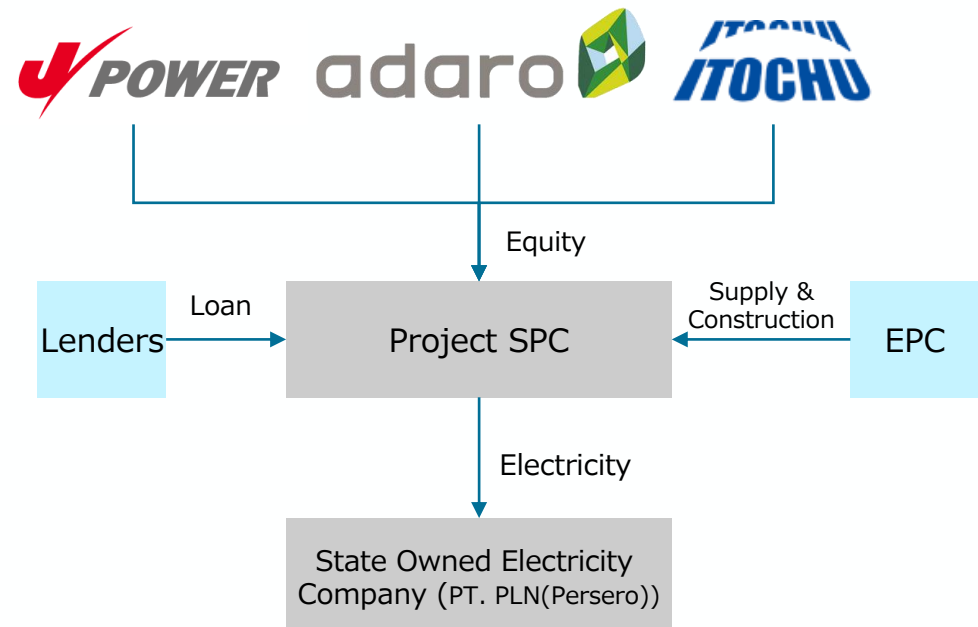
**Purpose or objectives of MOU** : The companies plan to develop the project to contribute to the energy transition in Indonesia by potential future hydrogen co-firing.

## Project Site



Central Java,  
Indonesia

## Assumed Project Scheme





**Outline** : As a subsequent document to MOU which was concluded between PLN and JBIC in November 2022, the Protocol confirms the further cooperation to achieve energy transition in Indonesia.

**Objectives** : The protocol aims to accelerate financial supports for development of green infrastructure including renewable energy and transmission lines / smart grid, energy efficiency, and green transportation. It also approaches quality support for capacity building.



MOU between PLN and JBIC to strengthen the partnership between the two organizations, at the series of G20 "Energy Transition Day" events held by PLN in Bali, Indonesia.



Transmission Line Seminar hosted by JBIC

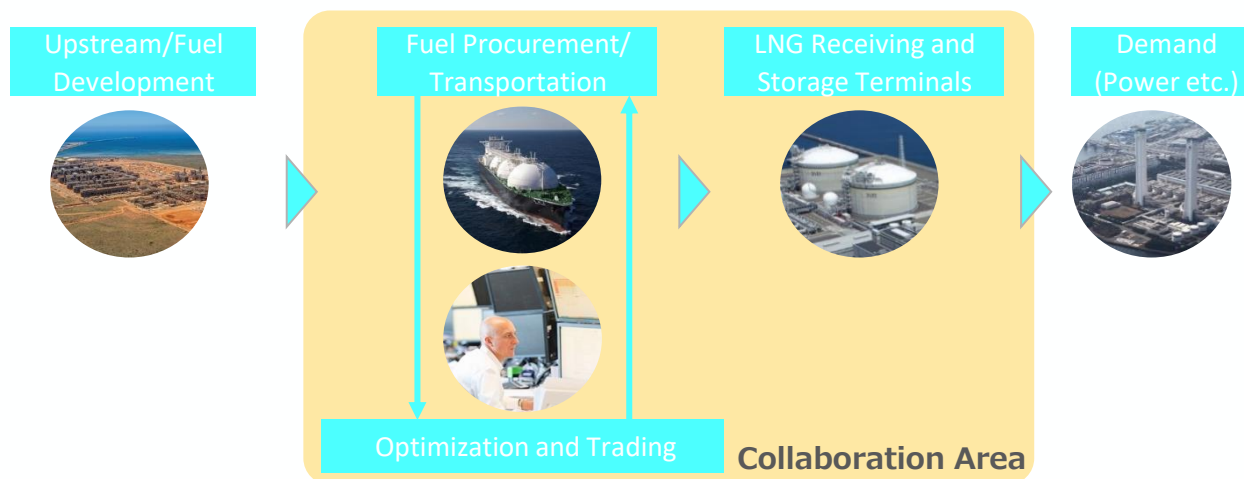


# MOU between JERA and PLN EPI on LNG Value Chain Collaboration

**Cooperation outline :** To explore collaboration with PLN EPI to establish an LNG value chain as a key energy transition fuel toward the achievement of net zero emissions by 2060 in Indonesia. Area of interests are ① LNG procurement and optimization, ② development and operation of LNG receiving terminals, and ③ development of potential ammonia and hydrogen for future fuel substitution.

**Purpose or objectives of MOU :** As Indonesia is highly dependent on coal-fired power generation, LNG is becoming increasingly important as a transition fuel. In anticipation of growing LNG demand in Indonesia, JERA who has expertise in LNG, will collaborate with PLN EPI to optimize LNG procurement and to develop LNG receiving terminals. This initiative aims to establish not only an LNG value chain, but also future value chain for ammonia and hydrogen which will contribute to achieving net-zero emissions in Indonesia.

URL : [Collaboration with PT PLN Energi Primer Indonesia on LNG Value Chain Development | Press Release\(2024\) | JERA](#)



MOU signing ceremony  
at Bandung, Indonesia (February 2024)

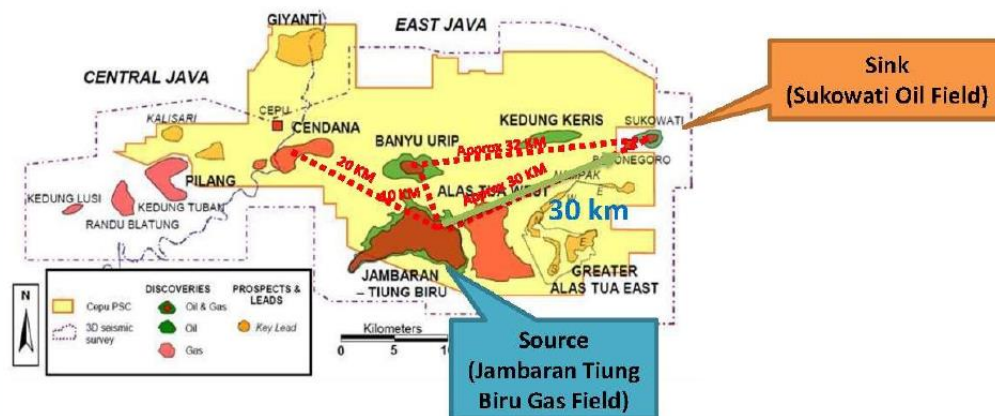
# Joint Study Agreement for Implementing Inter-Well CO<sub>2</sub> Injection Test in Sukowati Field in Indonesia

**Cooperation outline** : JOGMEC, JAPEX, PT Pertamina (Persero) and PT Pertamina EP have agreed to implement an inter-well CO<sub>2</sub> injection field test in the Sukowati oil field in East Java, Republic of Indonesia in FY2024.

**Purpose or objectives of MOU** : The parties intend to jointly develop the first commercial CO<sub>2</sub> enhanced oil recovery project in Southeast Asia, and the test to be implemented in this study will be an important milestone to achieve this goal.

**Other points** : Encouraging results from the preliminary study conducted in FY2023, including a small-scale injection test at a single well, lead to this relatively larger-scale inter-well injection test.

## Sukowati CO<sub>2</sub>-EOR Project



Source: CCUS Activities in Indonesia presented at JAPAN-ASIA CCUS FORUM 2020

## Well Pad in Sukowati Field

(Small-Scale CO<sub>2</sub> Injection Test in FY2023)



Source: Pertamina

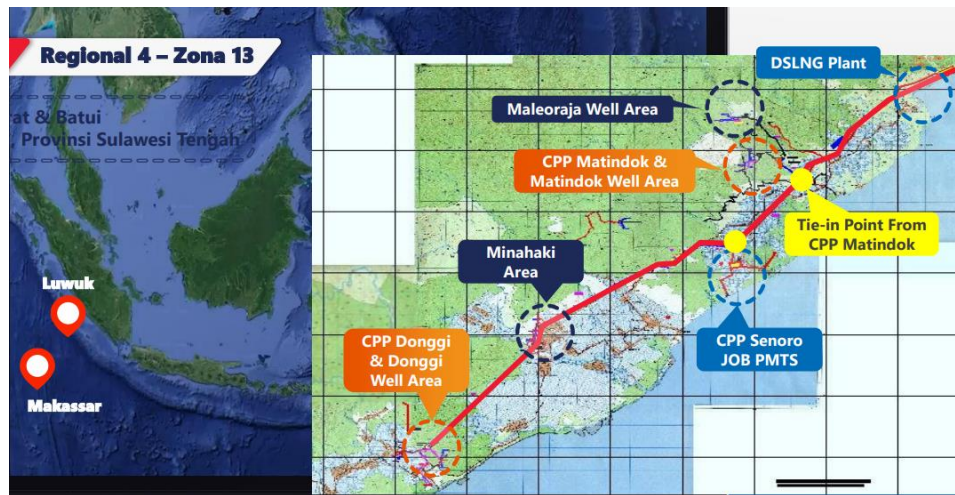
# Joint Study Agreement for Methane emission measurement in Donggi-Matindok field and JOB Tomori field in Indonesia

**Cooperation outline** : JOGMEC and Pertamina agree to conduct joint research on methane emission measurement and carbon intensity quantification

**Purpose or objectives of MOU** : JOGMEC and Pertamina will contribute to cleaner natural gas brought into Japan by working together to build Pertamina's methane emission measurement system in Pertamina's working area.

**Other points** : Project will be started at operation facilities in Indonesia (Donggi Matindok and JOB Tomori Field) from 2024.

## Donggi-Matindok field and JOB Tomori field



## Project structure





# Memorandum of Cooperation between MEMR, BRIN, IFHE, and JICA for partnership towards promoting Hydrogen and Ammonia Development

**Cooperation outline** : The Parties will strengthen their comprehensive cooperation in; (i) Research and development of policies, regulatory framework and standards on new energy (hydrogen and ammonia), (ii) Public and private stakeholder engagements for both Indonesia and Japan, (iii) Knowledge and capacity development for the latest technologies and policies, (iv) Formulation of new program/project for financing necessary infrastructures to accelerate the market creation for new energy (hydrogen & ammonia).

**Purpose** : Based on the Indonesia Hydrogen Roadmap, MOC intends to develop cooperation in the field of promoting new energy (hydrogen and ammonia) toward decarbonization in Indonesia with the view to achieve the purpose of Article 2 of Paris Agreement and net zero target by 2060 in Indonesia.

**Other points** : JICA will launch Data Collection Survey regarding supply chain of Hydrogen and Ammonia within 2024 based on the MOC.



MOC signing





# Letter of Intent between Pertamina and JICA for partnership towards promoting energy transition in Indonesia

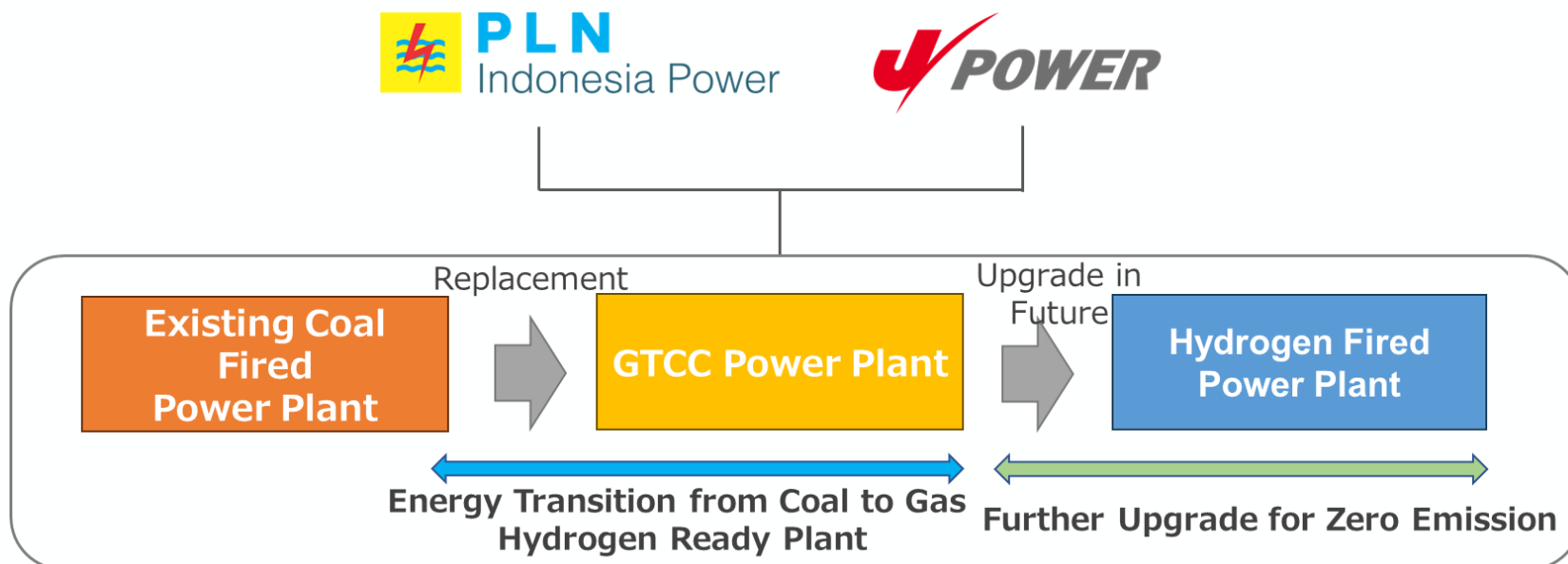
**Cooperation outline** : The Parties will discuss and explore potential collaboration such as; (i) financing support for energy transition programs, (ii) conducting research or technical assistance for new energy (Hydrogen & Ammonia), CCS/CCUS, renewable energy, biomethane, and battery (iii) connecting technology partner and market in Japan, (iv) potential collaboration in marine & logistic sector, (v) capacity development program for energy transition, etc.

**Purpose** : To develop cooperation in the field of promoting energy transition in Indonesia with the view to achieve the purpose of Article 2 of Paris Agreement and net zero target by 2060 in Indonesia.



# JDSA for a feasibility study between PT PLN Indonesia Power and JPOWER for the project to convert existing coal-fired power plant to CCGT

- Joint Development Study Agreement (JDSA) is an agreement between PT PLN Indonesian Power and Electric Power Development Co.,Ltd. (JPOWER) to conduct a feasibility study for the project to convert the existing subcritical coal-fired power plant to a state-of-the-art Gas Turbine Combined Cycle that enables to reduce CO2 emissions to approximately one-third.
- In addition, we will conduct a feasibility study on possibility of future implementation of state-of-the-art combustion technology that enables hydrogen combustion to further reduce CO2 emissions.

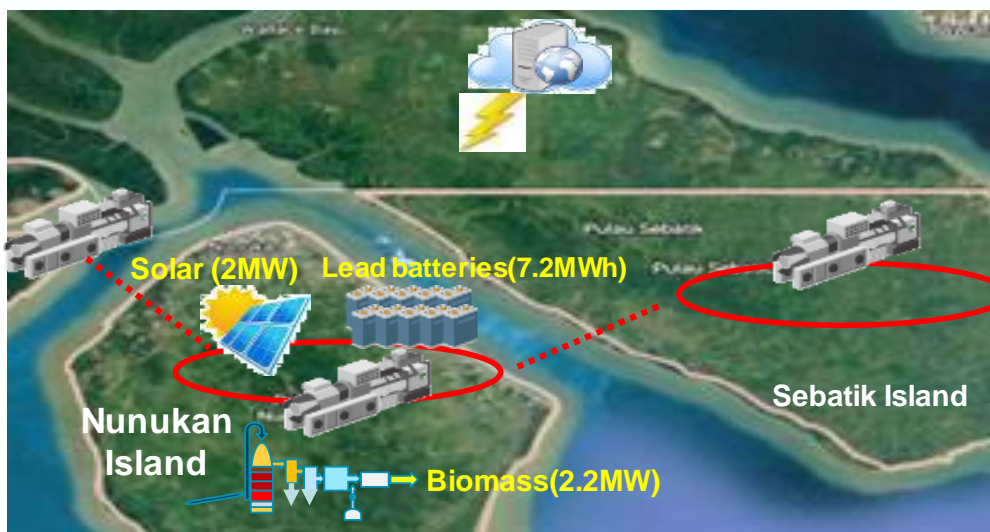


# JDSA for Detail Study of Hybrid Power Plant : Solar PV + Biomass + BESS + Energy Management System in North Kalimantan

**Cooperation outline** : As the progress of the "MoU" on Renewable Energy Business Development" signed with Indonesia Power Company (PLN Group) in 2023, FS sponsored by NEDO to utilize renewable energy as a base power source on Nunukan Island, North Kalimantan is on going to next step (equipment demonstration).

**Purpose or objectives of MOU** : There is a possibility that it will be expanded not only to Indonesia, which is an island country, but also to other regions and Japan.

**Other points** : NEDO demonstration will be started after final approval in next year. It will be Hybrid System by "Kyudenko EMS" which are Biomass(by EFB) + PV + Large scale Battery for achieving RE100% in future.



# Efforts Towards Decarbonization and Low-Carbon Industrial Heat Demand in Indonesia

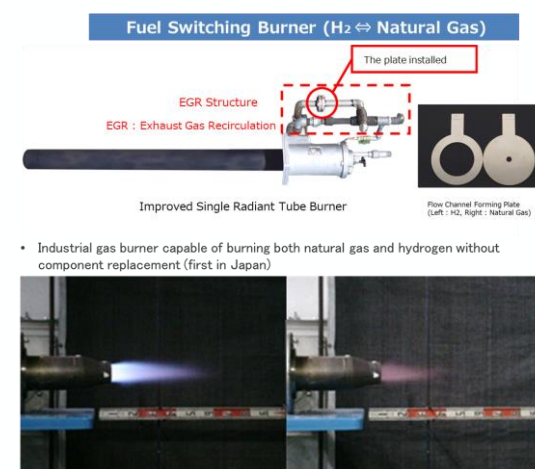
**Overview :** LNG Japan Corporation and Toho Gas Co., Ltd. have invested in PT Bayu Buana Gemilang, a company that supplies industrial natural gas in Indonesia. By expanding the natural gas infrastructure, we aim to reduce carbon emissions in the industrial sector. Moreover, we plan to explore business opportunities in areas such as biogas, hydrogen, and e-methane, which have the potential to further advance decarbonization.

**Purpose and Goal :** We will promote the utilization of Indonesia's domestic natural gas resources through pipeline supply and contribute to the realization of a low-carbon society. Furthermore, in alignment with the country's goal of net zero CO2 emissions by 2060, we aim to encourage collaboration between Japanese and Indonesian companies in the development of renewable and new energy businesses (such as biogas, hydrogen, e-methane, etc.) to help create a decarbonized environment as an energy supplier.

## Business Area



## Sample Technology





# Joint Study Agreement ("JSA") for the Implementation of BECCS Project in South Sumatra, Indonesia

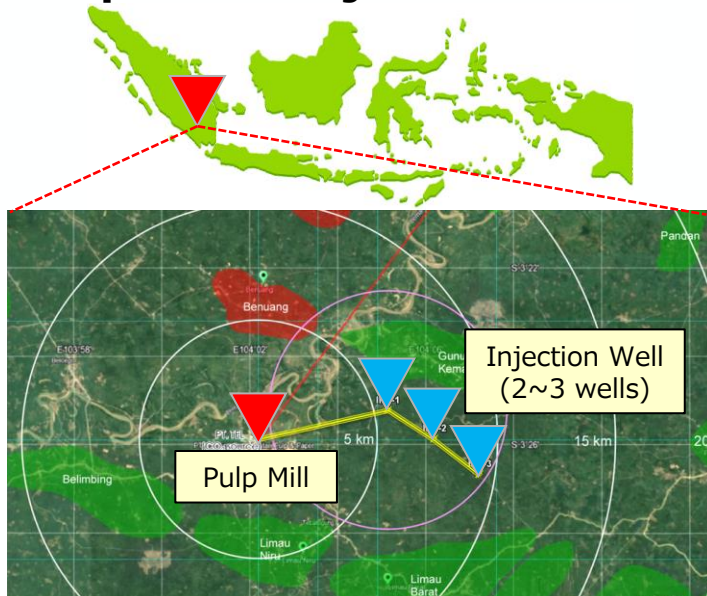
**Outline of the JSA :** To jointly conduct a feasibility study for a BECCS\* project in South Sumatra, Indonesia. The project involves **capture** of bioenergy-derived CO<sub>2</sub> emitted from a pulp mill operated by Marubeni, **transportation** and **storage** of the CO<sub>2</sub> into deep saline aquifers near Limau Niru oil field.

\*BECCS=Bioenergy with Carbon Capture and Storage. It is one of the negative emission technologies that achieves carbon negativity by capturing and storing bioenergy-derived CO<sub>2</sub>.

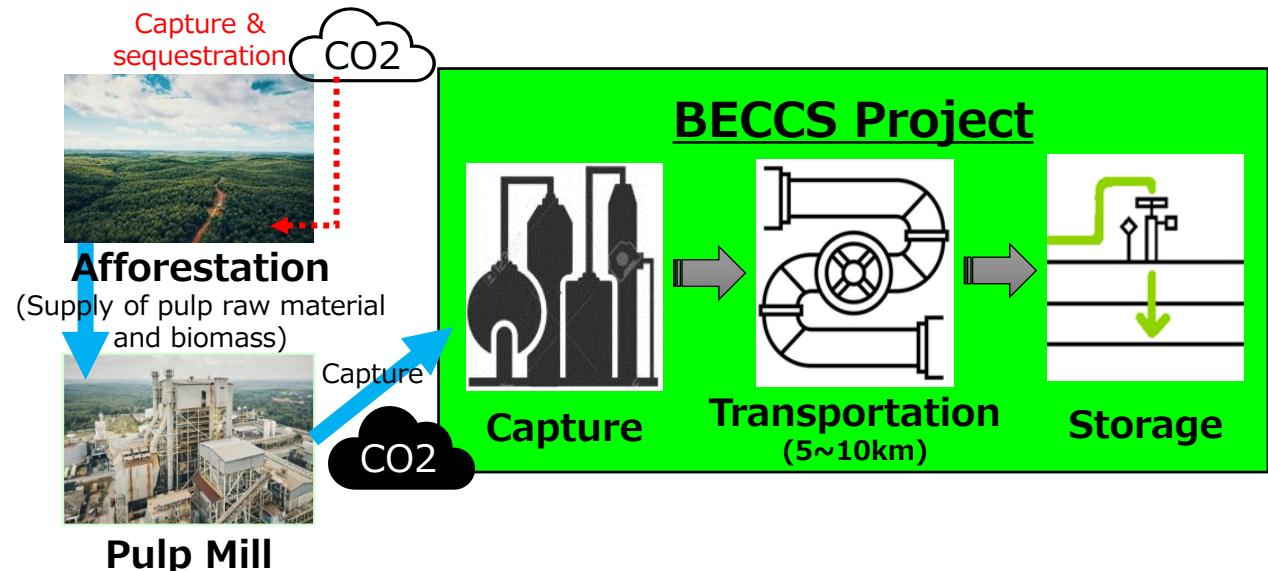
**Parties involved in the JSA :** Marubeni Corporation, Japan Petroleum Exploration Co.Ltd., PT Pertamina (Persero), PT Pertamina Hulu Energi

**Objectives of the JSA :** By realizing carbon negativity, aiming to contribute to the reduction of CO<sub>2</sub> emissions and generate revenue through the creation and trading of carbon-negative credits.

## Map and Project Site :



## Illustration of Project Concept :



New comprehensive cooperation in the energy sector was confirmed in both countries by replacing the MOCs with the Indonesian Ministry of Energy and Mineral Resources ((1) MOC in the Energy Sector (June 2019) and (2) MOC on Energy Transition (January 2022)).

Both countries shared the importance of the AZEC principles of **"aiming for common goals through various pathways"** and **"simultaneously achieving economic growth, energy security, and decarbonization"**.

### Main area of cooperation

1. **Formulation of energy transition roadmap**
2. Renewable energy, energy efficiency, and other clean energy technologies, such as **hydrogen, ammonia, Carbon Recycling, and CCS/CCUS**
3. Other energy including **oil, gas, and electricity**

### Main forms of cooperation

1. **Encouraging cooperation between business entities of both countries**, such as promotion of energy investment and joint project, which contribute to the acceleration of energy transition efforts.
2. **Exchanging information** on energy policy improvement, **identifying possibilities for cooperation**, and **knowledge sharing** on energy transition efforts such as hydrogen, ammonia, Carbon Recycling, CCS/CCUS, and low and zero emissions technologies.
3. Promoting renewable energy and energy efficiency projects, and **exchanging information** on the areas such as solar, wind, geothermal, bioenergy, hydropower, hydrogen, electric vehicles, charging infrastructure, and energy efficiency.
4. **Promoting decarbonization projects in industrial park**
5. **Promoting cooperation in oil, gas, and LNG projects, as well as development of power generation and grid**
6. Conducting efforts related to **joint training, exchanging students and researchers for energy technologies and policies**, including oil, renewable energy, energy efficiency, and nuclear energy

# MOU between NEDO and MEMR concerning cooperation in the decarbonization of the energy sector



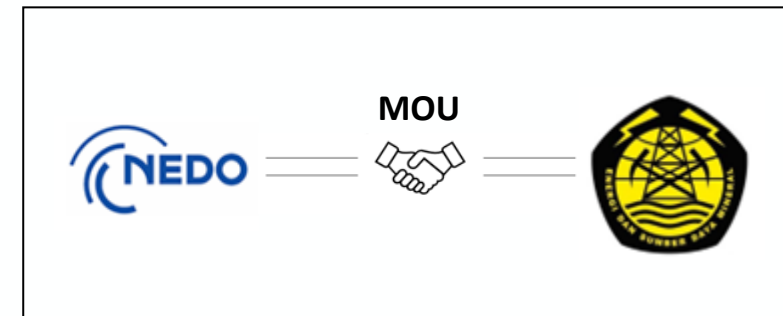
**MOU overview :** MOU between NEDO and MEMR(Ministry of Energy and Mineral Resources) to enhance cooperation on decarbonization efforts in the energy sector including hydrogen utilization, electrification of remote islands, and next-generation fuels.

**Significance :** To enhance cooperation on decarbonization efforts in the energy sector through collaborative activities in utilizing available energy sources including renewable energy, clean technologies, energy efficiency, and options that could help enhance energy security while reducing greenhouse gas emissions.

**Others :** This MOU refers to the Memorandum of Cooperation between the Ministry of Energy and Mineral Resources of the Republic of Indonesia and the Ministry of Economy, Trade and Industry of Japan on the Realization of Energy Transitions.

## ● Forms of cooperation

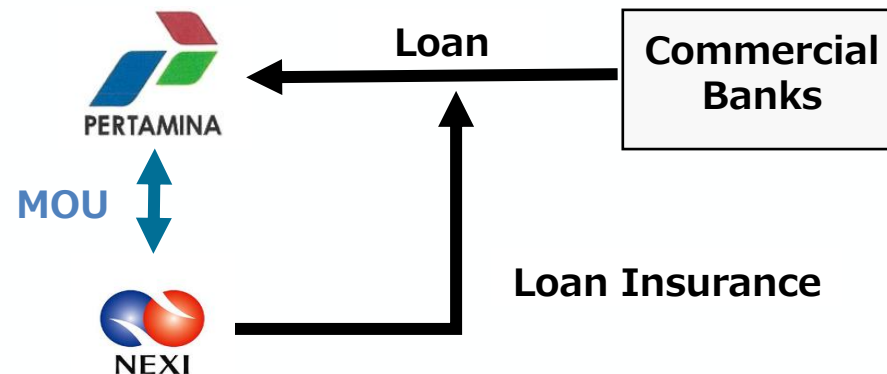
1. Project financing;
2. Conducting demonstration projects, detailed studies, technical advisories, and pilot projects;
3. Exchanging of information and experts;
4. Conducting capacity building programs such as technical visits, secondment, workshops, and seminars;
5. Other forms of cooperation as decided by the Participants.



**Cooperation outline :** Nippon Export and Investment Insurance (NEXI) and PT Pertamina, the state-owned energy company of the Republic of Indonesia, signed MOU at the timing of AZEC Ministerial Conference in December 2023. NEXI and PT Pertamina [amend/will amend] this MOU to continue further discussion on NEXI's financial support by Loan insurance.

**Purpose or objectives of MOU :** This MOU [further strengthens/will further strengthen] the cooperation between NEXI and PT Pertamina in the natural resources sector, and [supports/will support] PT Pertamina's activity to achieve the Energy Transition in Indonesia.

## [Scheme]





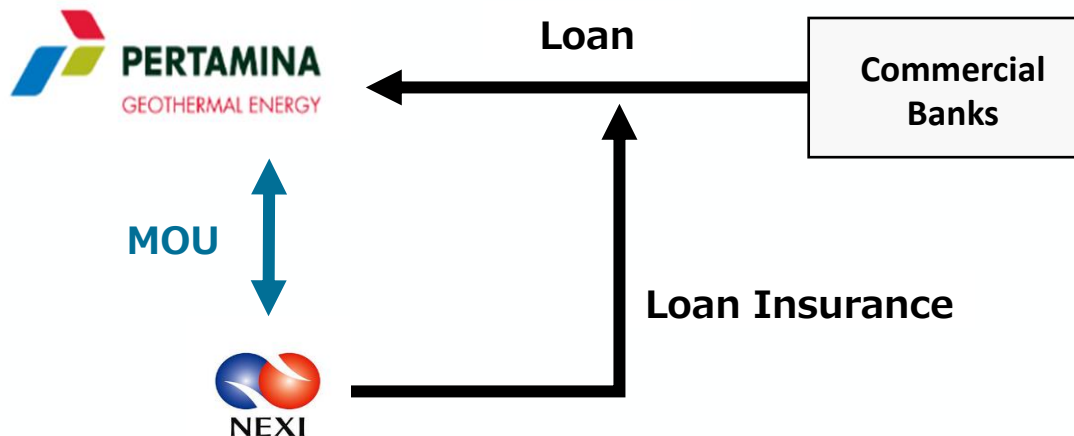
# NEXI signs MOU with PT Pertamina Geothermal Energy

**Cooperation outline :** Nippon Export and Investment Insurance (NEXI) and PT Pertamina Geothermal Energy (PGE) [agree/will agree] to cooperate in the field of geothermal power as a part of AZEC Concept.

**Purpose or objectives of MOU :** This MOU [further strengthens/will further strengthen] the cooperation between NEXI and PGE through geothermal power projects, and [supports/will support] PGE's activity to achieve the Energy Transition in Indonesia.

**Other points :** NEXI and PGE will discuss possibility to apply NEXI's Loan insurance based upon this MOU.

## 【Scheme】



# MoU with Indonesian State-Owned and Subsidiary of Pertamina for Cooperation in Liquefied CO<sub>2</sub> Business

**Cooperation Outline** : PT Pertamina International Shipping, a marine logistics subsidiary of PT Pertamina (Persero) and NYK Line signed MoU to collaborate in the field of liquefied CO<sub>2</sub> (LCO<sub>2</sub>).

**Contract Parties** : PT Pertamina International Shipping (PIS) , NYK Line

**Purpose of MOU** : Indonesian government plans to become the largest storage operator in Asia by attracting demand for CO<sub>2</sub> landfills from the surrounding areas. This MoU is intended to contribute to decarbonized society from the perspective of LCO<sub>2</sub> transportation.

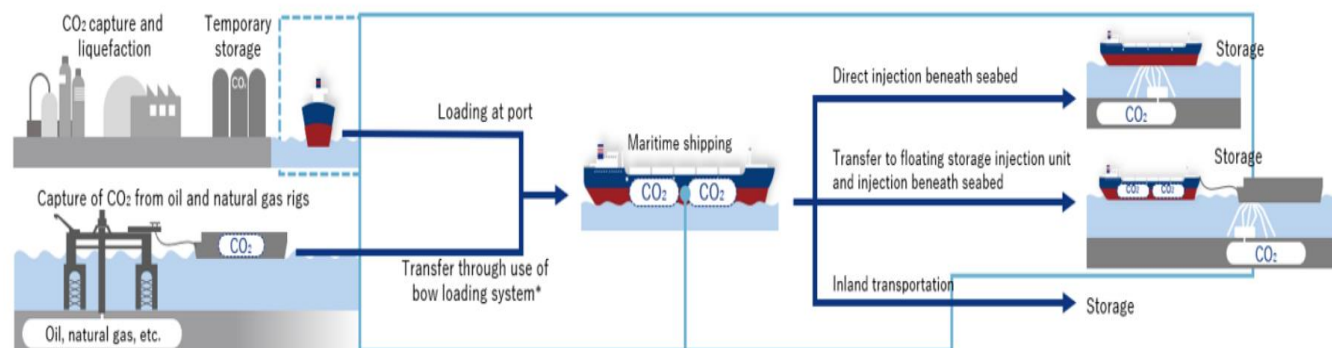
URL : [NYK Signs MoU with Indonesian State-Owned and Subsidiary of Pertamina for Cooperation in Liquefied CO<sub>2</sub>, LNG Transportation and Ship Management | NYK Line](#)

## <Signing Ceremony>



from left,  
PIS President Commissioner Mochtar Husein,  
PIS CEO Yoki Firnandi  
NYK Managing Executive Officer Hironobu Watanabe,  
Pertamina President Director & CEO Nicke Widyawati

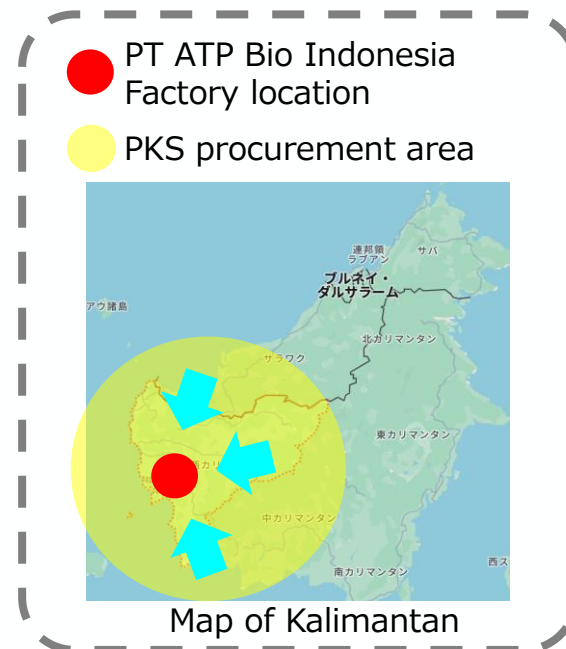
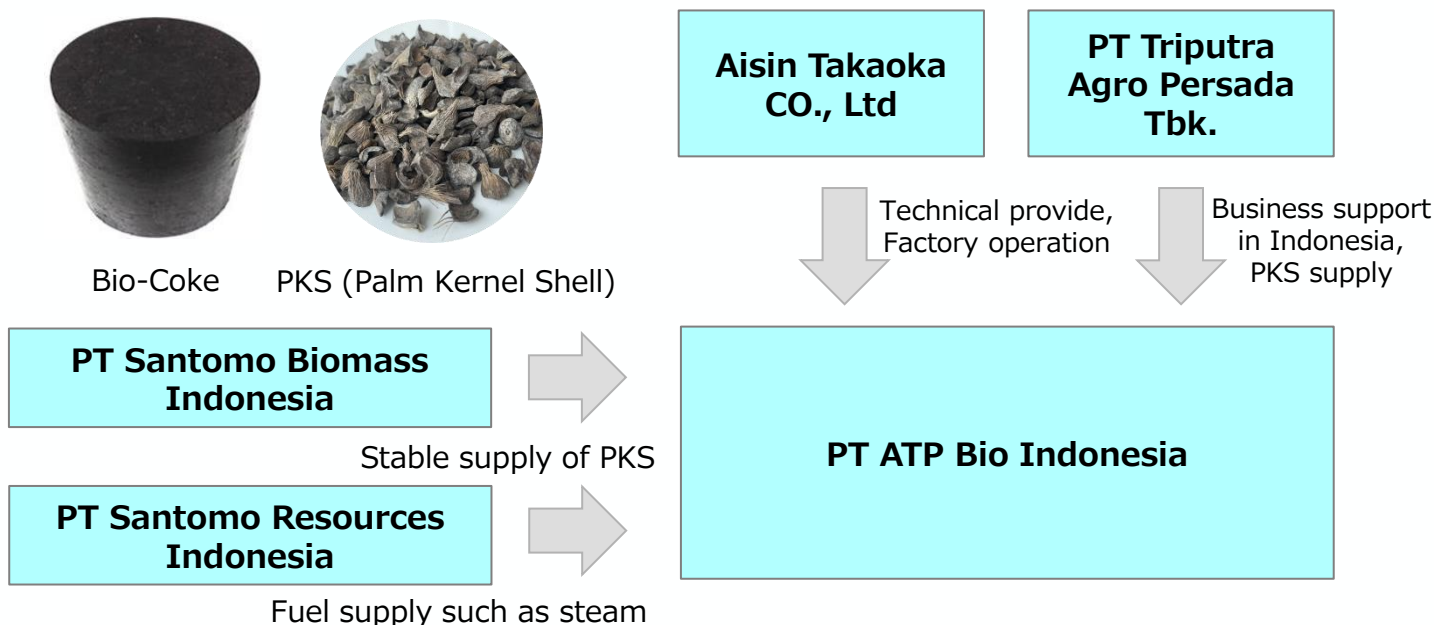
## <Image of LCO<sub>2</sub> transportation in CCS Value chain>



**Cooperation outline :** For PT ATP Bio Indonesia's PKS derived Bio-Cokes production, PT Santomo Biomass Indonesia provides a stable supply of PKS while PT Santomo Resources Indonesia provides the gas and other fuels.

**Purpose of MOU :** The production of PKS derived Bio-Cokes in west Kalimantan, will lead to the realization of a sustainable society through the reduction of CO2 emissions and the effective utilization of waste materials.

**Schedule :** PKS and gas supply, and production of Bio-Cokes is scheduled to start in early 2025.



# MoU for the construction of a wood pellet factory planned to be built inside the sawmill area in East Java which will use the wood wastes generated directly from the sawmill

**Cooperation outline** : PT Santomo Biomass Indonesia will construct a new wood pellet factory inside PT Seng Fong Moulding Perkasa's sawmill area, thereby reducing raw material transportation costs and CO2 emissions.

**Purpose of MOU** : By constructing a wood pellet plant within a sawmill, the project aims to realize stable procurement of wood wastes, reduction of costs and CO2 emissions during transportation of raw materials.

**Schedule** : Construction of the plant is scheduled to begin during 2024, with production and supply of pellets to begin in early 2025.



Saw dust generated in PT Seng Fong Moulding Perkasa

**PT. Santomo Biomass Indonesia**

Investments and operation



Image of final product of wood pellet

**PT. Seng Fong Moulding Perkasa**

Supply raw materials

**Wood pellet factory**

Supply wood pellet

**Factories in west Java**



- **Cooperation Outline**

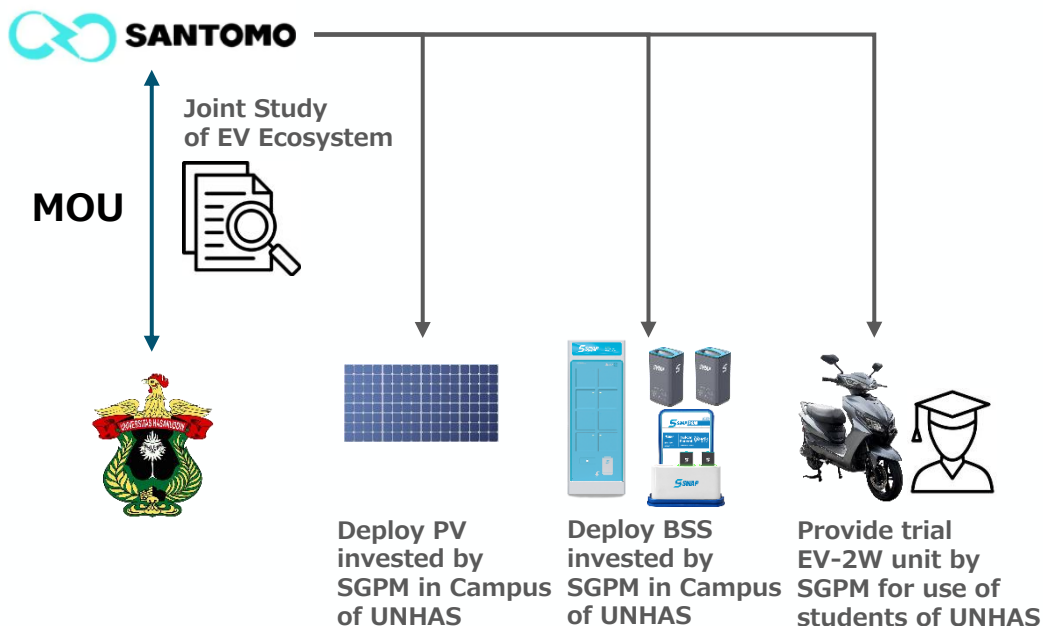
➢ Cooperation for both Co-Study of EV ecosystem and implementation of EV-Motorcycle, Battery Swapping Station (BSS) and Solar PV.

- **Purpose or Objectives of MOU**

➢ Discuss how to realize circular-decarbonized-EV society through Co-Study and trial of EV-2W using green energy provided from Solar-PV.

- URL : <https://san-tomo.com/posts/ZpoVQFOb>

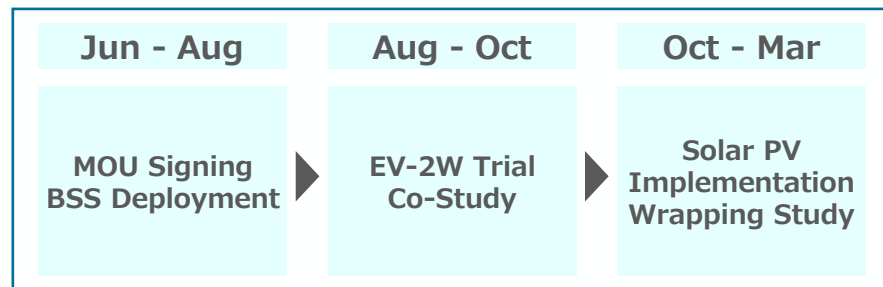
## Scheme



## Project Location



## Schedule

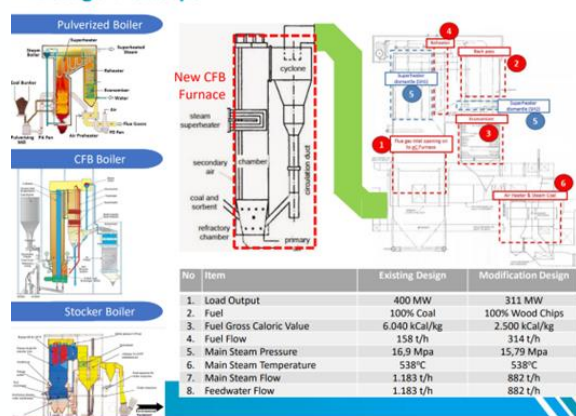


# MOU between SHI & PT.PLN Nusantara Power on conversion from coal to biomass

- **The overview of MOU** : The objective is to realize coal phase-out of the thermal power plants owned by PT. PLN Nusantara Power (PNP) by designing conversion to wood chip fired power plant through cooperation between SHI & PNP. Also including making of fuel conversion roadmap, conducting fuel combustion tests and making plan for specific conversion cases.
- **The Purpose of cooperation** : The goal is to achieve power price level as low as that of coal power plant by utilizing relatively cheap local wood chip and other biomass fuel in Indonesia and contribute to Indonesian Net Zero Target.
- **Other Points** : We are to specify existing power plants in Indonesia and applying the output of our feasibility study of conversion to full biomass combustion that has been carried out since 2023.

## <Modification from PC Boiler to CFB Biomass Boiler>

### Modification PC Boiler to CFB Boiler Design Concept



**Modification Concept** is to combine PC boiler technology (low biomass fuel operated) with CFB Boiler (High biomass fuel operated). To make the lifetime Payton 1&2 increased because can operates with more environmentally friendly, while still optimizing the use of boiler existing equipment.

**Modification Benefit:**

- Operate with 100% Biomass Wood Chips
- The price Wood chips Biomass cheaper if compared with another biomass.
- Most of the part power plant equipment can be reused (All Turbine system, steam drum, Economizer, Superheater, Reheater, Steam coil, Tube ESP & Ash system, Chimney.)

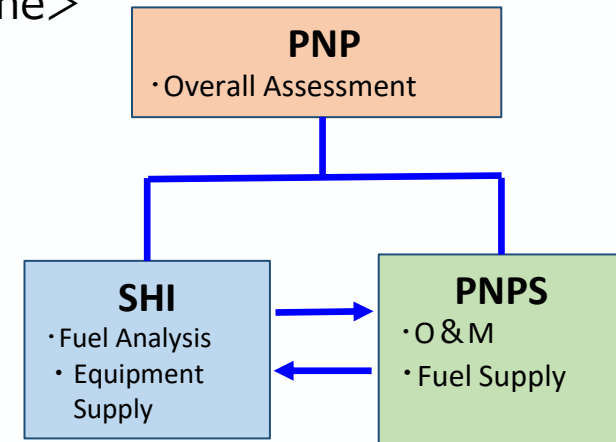
**Design Result:**

- Decreasing output capacity about 80% from design existing

**Project Duration:**

- 4 year (1 year for detail design & data analysis and 3 years for civil, construction and test commissioning)

## <Scheme>



Note) PNPS : PT.PLN Nusantara Power Services

# MOU regarding cooperation to support the development of LNG and e-methane VC

## Cooperation outline :

PLN EPI, a PLN subsidiary that operates in fuel procurement and transportation, and Tokyo Gas Asia will advance the planning of small-scale LNG value chain throughout Indonesia, as well as the examining of decarbonization measures (e-methane). The collaboration also includes PLN EPI human resources development to support the LNG value chain development and e-methane study.

## Purpose or objectives of MOU :

Indonesia has a strong demand for electricity and a continued need for base-load power. Promoting the expansion of LNG usage contributes to both economic growth and energy transition. With an aim to develop a carbon-neutral value chain, e-methane study will be conducted as well.



### Cooperation Areas

- Small-scale LNG value chain
- E-methane
- Human resources development

# Strategic Technology Partnership between PT PLN Nusantara Power ("PLN-NP") and Toshiba Energy Systems & Solutions Corporation ("TESS") for introducing Carbon Capture technology to PLN-NP power generation assets

**Brief of the MOU :** PLN group is establishing the de-carbonization strategy in accordance with the road map of Indonesian Government's Carbon Neutral Plan by 2060. Towards this ambitious target, PLN-NP is in the stage for seeking the opportunity to introduce de-carbonization technologies including CCUS to its own facilities in this long term energy transition period. Thus, TESS is confident that its Carbon Capture related knowledge and technology will certainly contribute to PLN-NP's strategy.

**Aim of this MOU :** This MOU is to establish the framework of the strategic technology partnership for future introduction of Carbon Capture technology between PLN-NP and TESS. Both parties will conduct the Feasibility Study under this MOU including the future implementation of its pilot plant to the existing PLN-NP power generation assets.

\*Candidate plant (TESS OEM)



Paiton



Carbon Capture Facility in  
Mikawa Power Plant



# Joint Development Agreement(JDA) for Green Ammonia Initiative from Aceh(GAIA) by Pupuk Indonesia(PIHC), ITOCHU and TOYO

**Collaboration Outline** : Agreed to jointly develop, including basic engineering design (FEED), a project to produce green ammonia by leveraging existing ammonia plant of Pupuk Iskandar Muda(PIM) which is PIHC's subsidiary

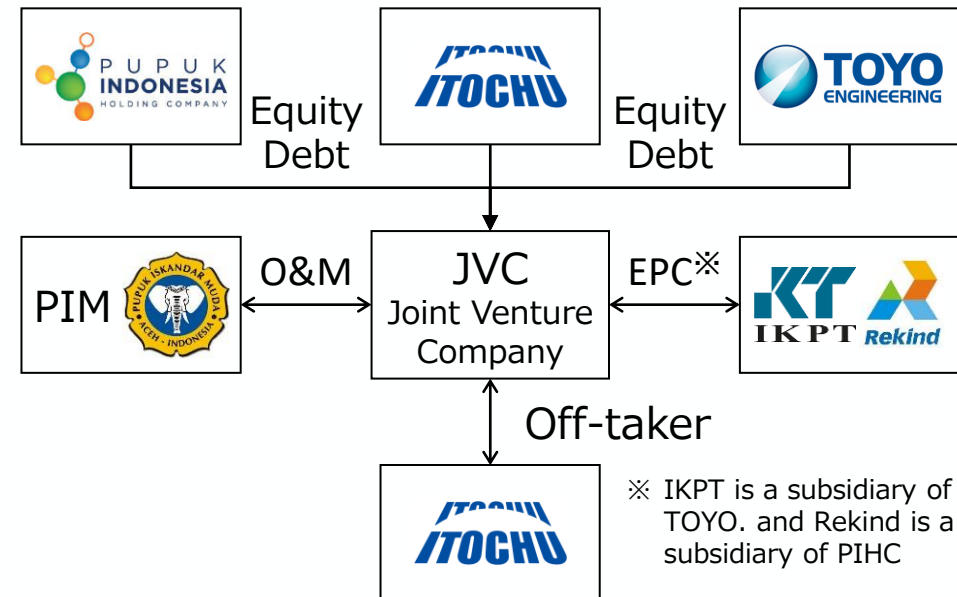
**Purpose and Strategy** : Utilize the part of capacity of PIM's existing ammonia plant (designed and constructed by TOYO) in the Special Economic Zone (SEZ) to produce green ammonia and integrate with ITOCHU's bunkering business. Aim to replicate this green ammonia initiative at other PIHC's existing plants in the future

**Schedule** : JVC establishment: Nov. 2024, FID: Mar. 2025, COD: Nov. 2027

## 【Location of PIM's Existing Ammonia Plant】



## 【Structure Outline】



# MoU for Joint Study on the Opportunity of Developing Full Potential of Geothermal Energy between PT Medco Power Indonesia (MPI) and TOYO Engineering Corporation (TOYO)

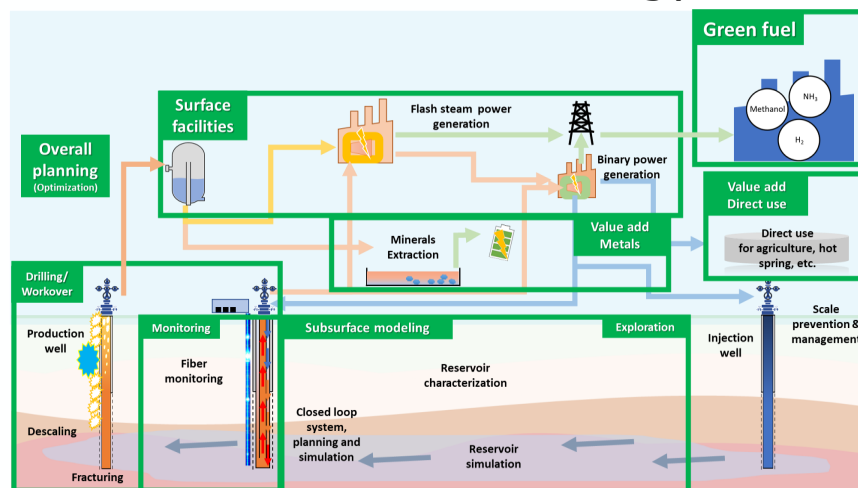
**Cooperation outline** : Execution of joint study on the opportunity of developing full potential of geothermal energy

**Purpose of MOU** : Promotion of joint study with MPI to fully utilize the potential of geothermal energy and to contribute the realization of a sustainable society and the economic development in Indonesia.

**In future, geothermal technologies to be proven in Indonesia will also enhance the full-scale geothermal power generation in Japan.**

URL : <https://prtimes.jp/main/html/rd/p/000000064.000107878.html>

## Image of Developing Full Potential of Geothermal Energy



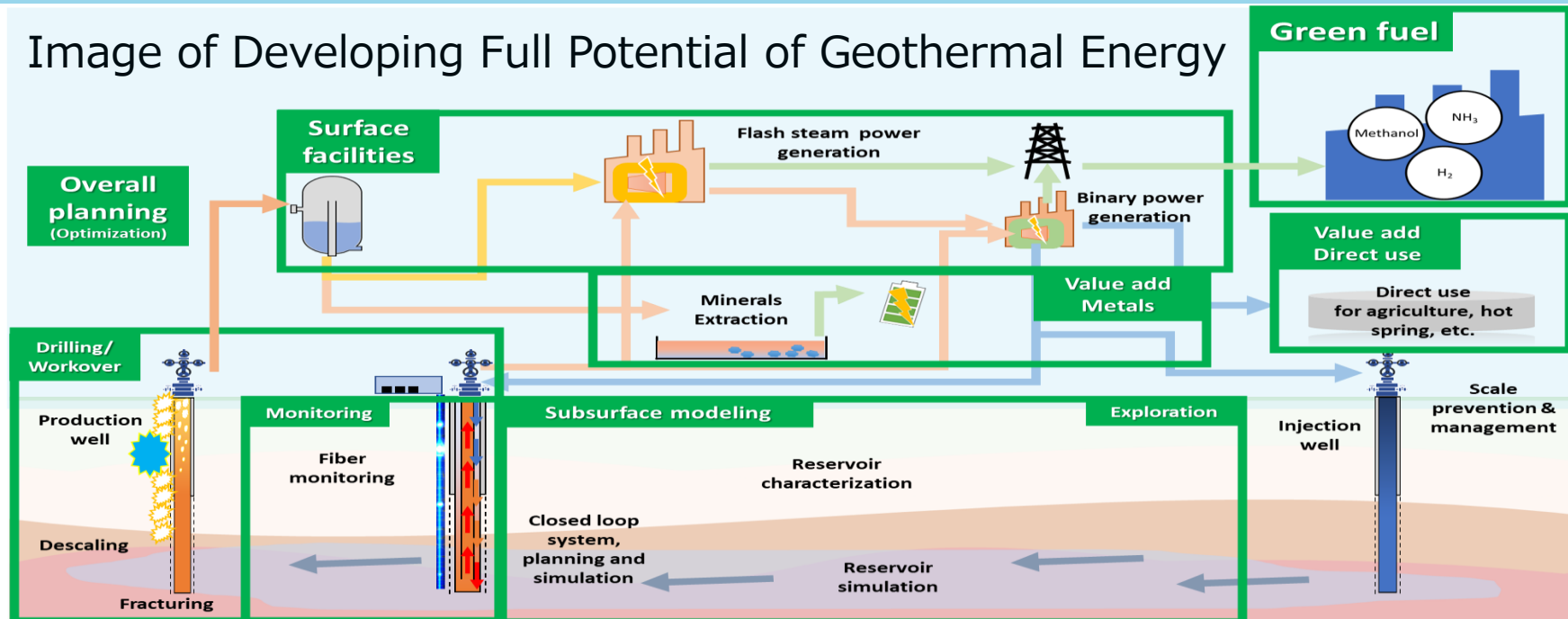
## Signing Ceremony at MPI's headquarters



# Letter of Intent (LoI) between The Survey and Testing Center for Electricity, New, Renewable Energy and Energy Conservation of The Ministry of Energy and Mineral Resources (BBSP KEBTKE) and TOYO Engineering Corp. (TOYO)

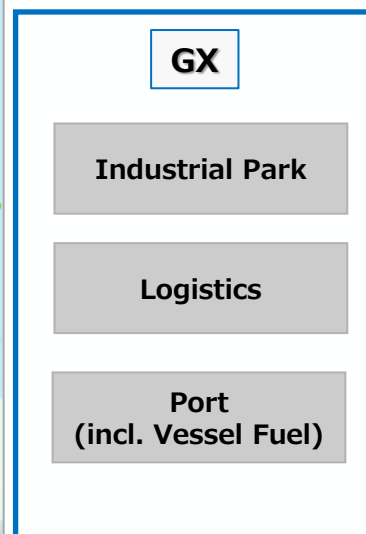
- **Cooperation outline** : Joint execution between MEMR and TOYO for preparation of Geothermal Master Plan for MEMR.
- **Purpose or objectives of LoI** : Cooperation with the Ministry of Energy and Mineral Resources (MEMR) for developing Geothermal Master Plan for MEMR, as part of Net Zero Emission (NZE) 2060 goal set by Government of Indonesia.
- **It will contribute to further strengthening the relationship between the two governments (METI/MEMR) through Global South Master Plan Development.**

## Image of Developing Full Potential of Geothermal Energy



# MOU for joint study and/or project development of Carbon Neutral Fuel Supply between PT Pertamina (Persero) and PT Toyota Tsusho Indonesia

- **Cooperation outline** : Both build a framework for joint study and project development for green transformation (“GX”), via Carbon Neutral Fuels (“CN Fuels”: biofuels (biomethane/biodiesel), electrification and green hydrogen/ammonia etc.) supply, for ①Industrial area, ②Logistics activities and ③Patimban port (incl. vessel) (“Eastern GX Corridor (EGXC)” initiative in the east of Jakarta).
- **Objectives of MOU** : Both aims at contribution to establishment of sustainable society and economic growth in Indonesia through achievement of CN target and enhancement of national energy security & competitive advantage in the global green industry, by realizing GX in the Patimban port project, as one of the National Strategic Project, which is developed & operated cooperatively by governments & private companies of Indonesia and Japan, and its related industrial value chain (EGXC).
- **Other points** : In this MOU, both parties jointly explore fuel production projects and establish supply infrastructure for CN Fuels for EGXC, while stimulating and creating potential demand. Both will implement Feasibility Study (incl. evaluation potential economic and technical aspects) for energy transition master plan and form some working groups to make concrete action plan for commercialization.



## Timeline:

FY2024: Master Plan FS

FY2026: Start Demonstration

FY2028~: Commercialization



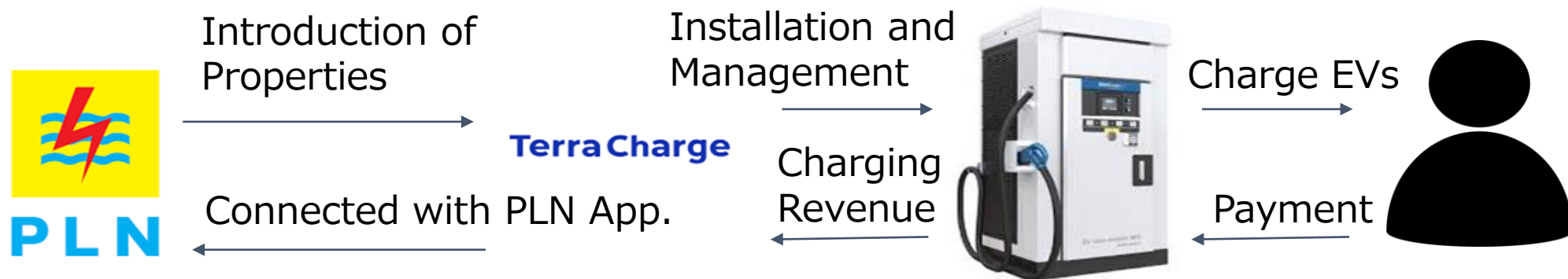
# Memorandum of understanding on collaboration between Zeroboard / PT. Megalopolis Manunggal Industrial Development / PT KDDI INDONESIA / KAMAR DAGANG DAN INDUSTRI INDONESIA

**Cooperation outline :** In industrial parks operated by MMID (60% owned by Marubeni), Zeroboard will promote GHG emission visualization for tenants using its cloud service. PT KDDI Indonesia will handle tenant inquiries about the system, and KADIN (Indonesian Chamber Of Commerce and Industry) Net Zero Hub will hold decarbonization workshops for awareness.

**Purpose or objectives of MOU :** Through this project, which has been awarded a JETRO ADX subsidy, we will verify methods of data sharing and necessary functions specific to Indonesia, thereby creating a model case for efficient visualization of GHG emissions at the industrial park level.



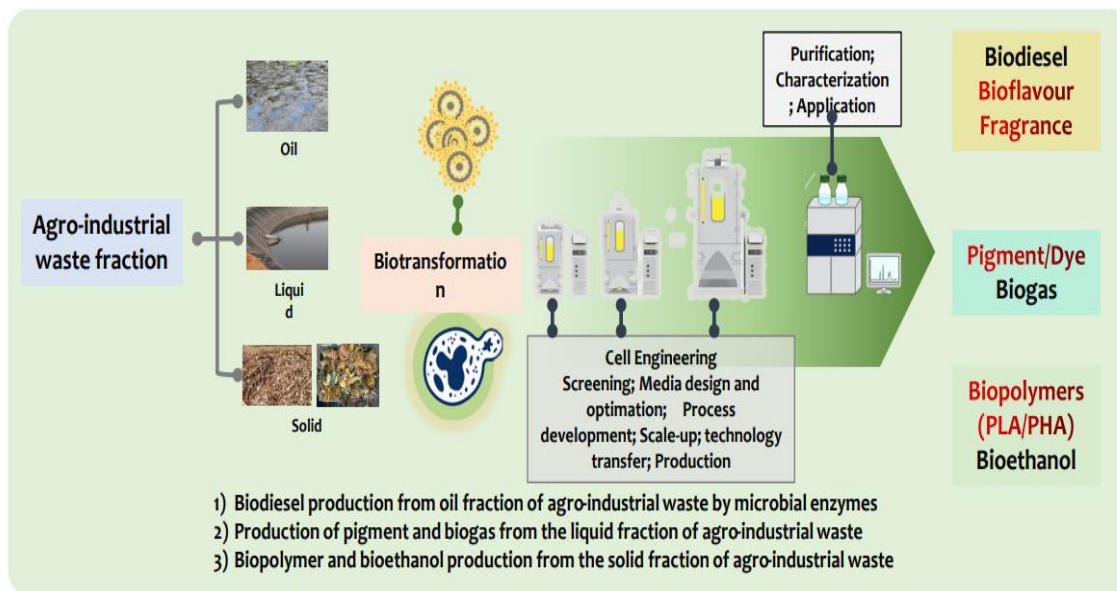
- **Cooperation outline** : An initiative to expand Indonesia's EV charging infrastructure through long-term collaboration with Indonesia's state-owned electric power company, PLN
- **Purpose or objectives of MOU** :
  - ① By receiving introductions to facilities from PLN, Indonesia's state-owned electric power company where Terra Charge's EV chargers can be installed, the initiative will contribute to expanding Indonesia's EV charging infrastructure.
  - ② The installation of these chargers will enhance the local presence of Terra Charge's EV charging solutions.



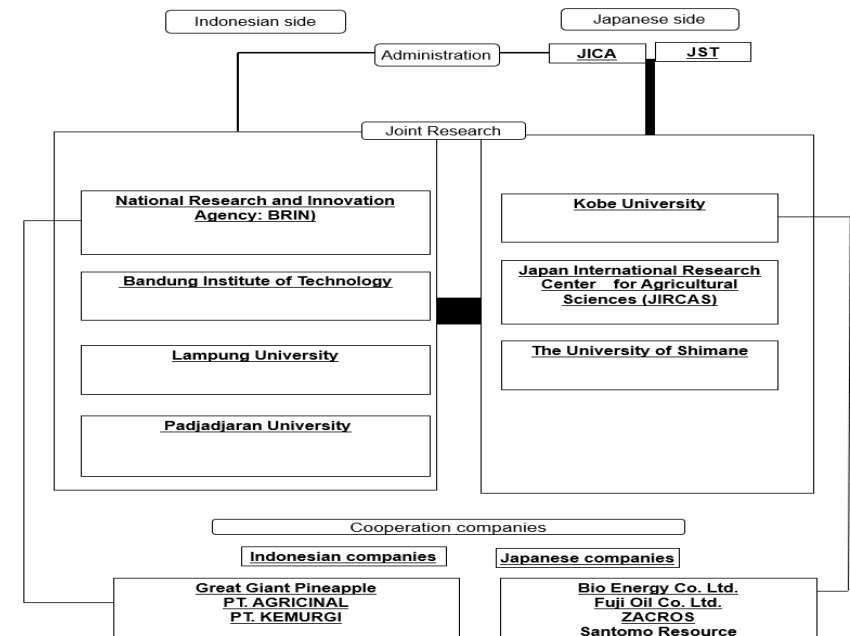
# RD for the Project for Development of Integrated Bio-circular Economy from Food and Energy Estate Waste Fraction to Biofuel and Bio-chemicals

- **Cooperation outline** : Aims to develop biofuel and bio-chemical production systems and propose business models using waste and wastewater from large-scale farms (food estates) in Indonesia
- **Purpose** : To contribute to the achievement of SDG Goals 7, 9, 12, 13 and 15, as well as being in line with the National Development Planning Agency Decree of the Government of Indonesia, which positions complex research on the environment, climate change and biodiversity as priority items

## <Outline of Technology>



## <Organization Structure>



- **Cooperation outline** : In order to cope with the increasing risk of future climate change in Indonesia, which has rich coastal ecosystems with high biological diversity, this project proposes measures to strengthen the resilience of the target marine area by considering it as an integrated social-ecological system.
- **Purpose of the cooperation** : Introduce a comprehensive approach with innovative methodology development for the enhancement of integrated ecosystem services, thereby enabling the maintenance and improvement of the region's blue economy.
- **URL** : [https://www.jircas.go.jp/ja/reports/2024/r20240410\\_0](https://www.jircas.go.jp/ja/reports/2024/r20240410_0)

JIRCAS

- Forestry Division
- Fisheries Division



Halu Oleo  
University,  
Indonesia

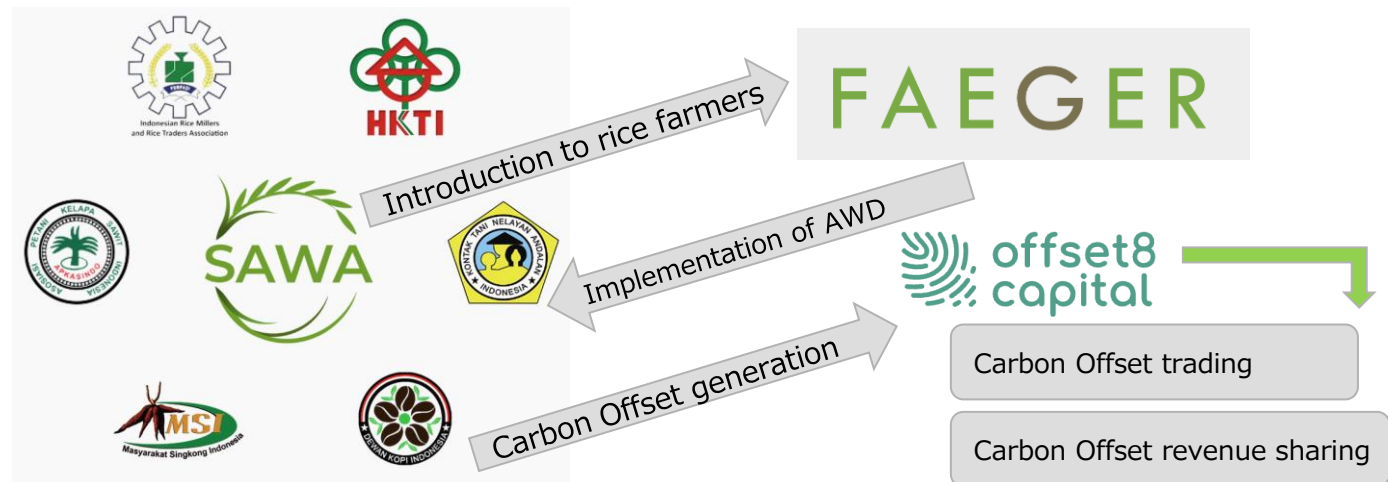


Research site of a mangrove  
in Sulawesi Island



# Greenhouse Gas (GHG) Reduction from Rice Farming in Indonesia

- **Cooperation outline** : Offset8 Capital Ltd., Sawa Ecosolutions, Inc., and Faeger, Inc, have signed a tripartite MOU to introduce AWD (Alternate Wetting and Drying) know-how for rice farming, reducing GHG emissions.
- **Purpose or objectives of MOU** : Sawa will introduce Faeger to local rice farmers, Faeger will help with the implementation of AWD and Offset8 will price and structure carbon offset transactions.
- **Other points** : 11% of the world's methane derived from anthropogenic activities is generated from rice fields. Methane's GWP is 28 times vs. CO<sub>2</sub>
- **URL** : <https://offset8capital.com/> <https://www.sawa.green/> <https://faeger.company/>



- **Cooperation outline** : Sugawara Industry Co., Ltd. is will utilize the JICA SME and SDGs Business Support Project to disseminate the widespread adoption of asphalt recycling technology and collaborate in conjunction with the Ministry of Public Works and Housing (MPWH) to explore the implementation of relevant regulations and manuals also verify the economic feasibility through demonstrations.
- **Objectives** : The use of recycled asphalt not only reduces CO2 emissions associated with material procurement (transporting crushed stone), but also promotes sound resource circulation and leads to sustainable pavement maintenance and management. Accordingly, Sugawara Industry and MPWH jointly creating specifications and manuals for pavement repair work /decisions. Sugawara Industry will consider demonstrating innovative approach and strategies for more cost-effective manufacturing and construction through pilot projects, which will facilitate local dissemination.
- **URL** : <https://www.jica.go.jp/domestic/tohoku/information/topics/2021/ku57pq00000mou8a.html>  
<http://sugawarakogyo.co.jp/>

<Reclaimed Asphalt Plant in Indonesia>

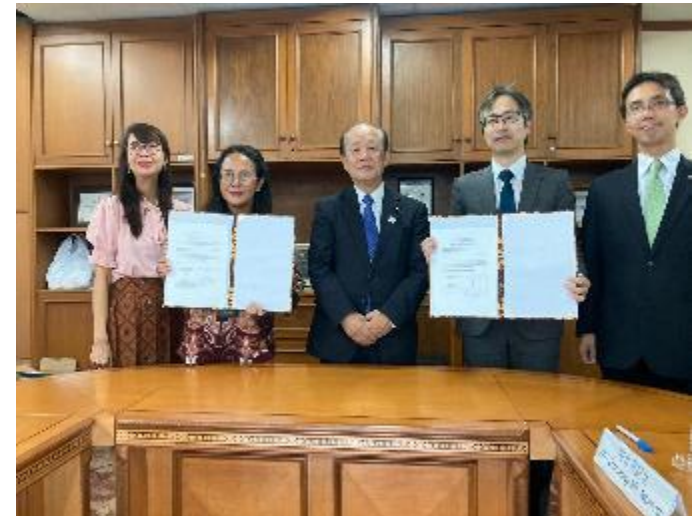
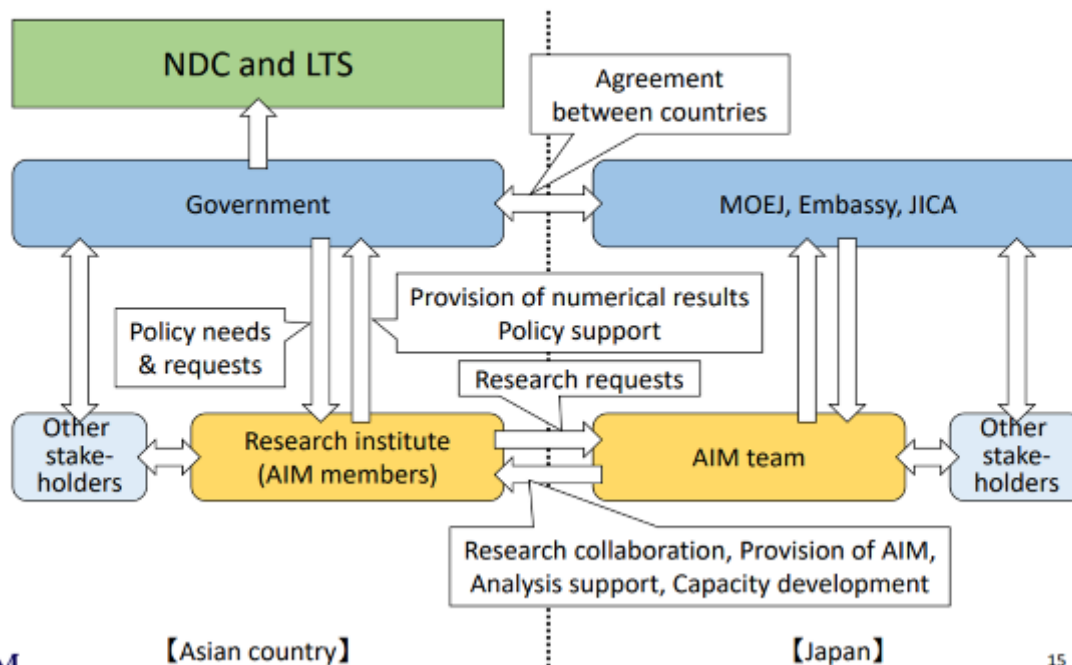


<Pavement repair work>



- **Cooperation outline** : Development of a decarbonization roadmap for the cement sector by using the Asia-Pacific Integrated Model (AIM) and exchange views and information on technological options for decarbonization in the cement sector.
- **Purpose or objectives of MOU** : To expand Japanese low-carbon technology through institution building and developing long term planning by sinario analysis.
- **Other points** : Update NDC with roadmap for the cement sector.

Expected structure to support climate policy in Asian country





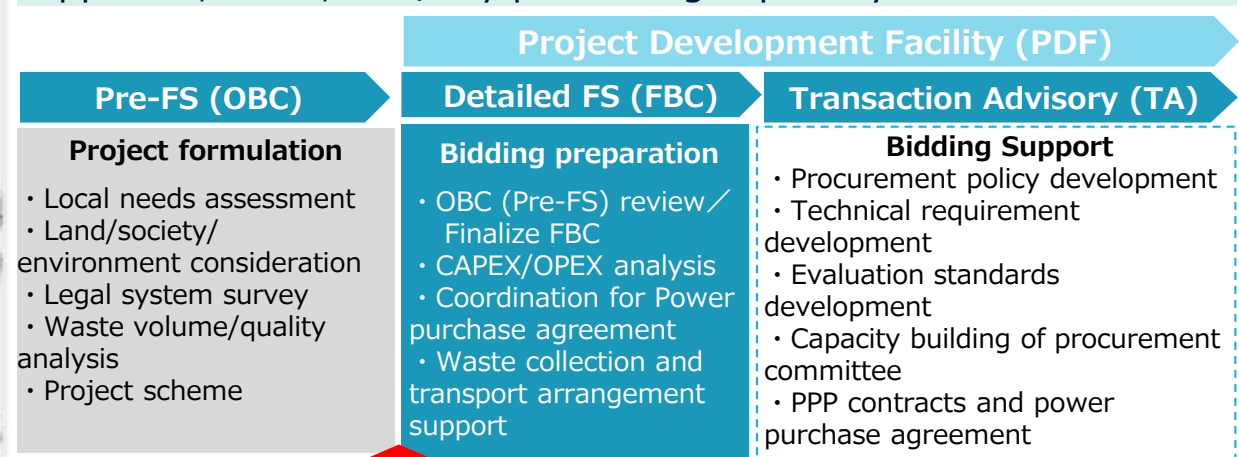
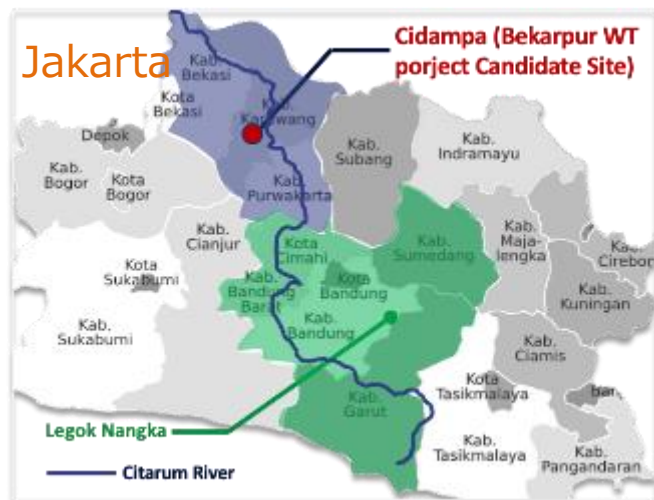
# Implementation arrangement between the Ministry of Environment of Japan and The Ministry of Environment and Forestry of the Indonesia on feasibility study on a large-scale waste treatment facility in Bekasi, Karawang, and Purwakarta area

- In 2020, in response to the request from West Java Province, the Bekarpur region was selected as a subsequent project of Waste-to-Energy project of Legok Nangka to improve the environment around the Citarum River.
- MOEJ conducted a PPP feasibility study (OBC: Outline Business Case)
- In April 2024, Implementation Arrangement (IA) was signed between MOEJ and KLHK(The Ministry of Environment and Forestry), according to which MOEJ has been conducting a value chain survey.
- Transition to the PDF process (FBC : Final Business Case and TA: Transaction Advisory) is expected.



## Value chain survey in Bekarpur

A preliminary study on waste at the generation site was conducted prior to a bidding support process (on generated/collected waste amount, transportation to landfill sites, etc.). The study found that the facility needs to have approx.1,000-1,300t/day processing capability.



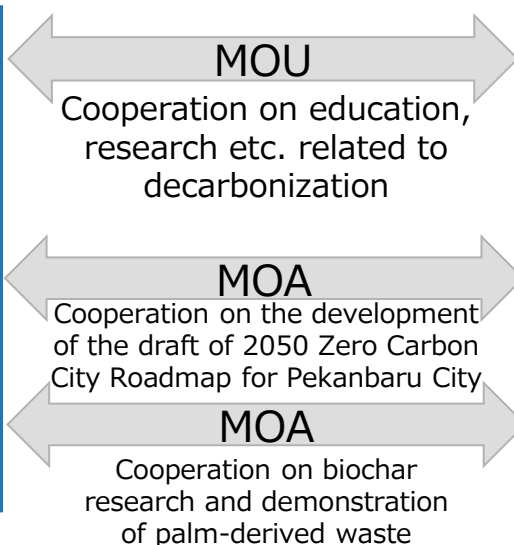


# MoU on education, research etc. related to decarbonization between Nippon Koei and Riau University

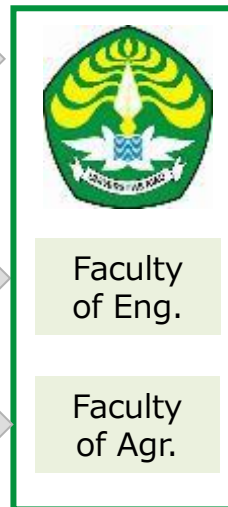
- **Cooperation outline** : Nippon Koei Co., Ltd. and Riau University cooperate academically and technologically to decarbonize Riau Province. Based on this MOU, a Memorandum of Agreement (MOA) has already been signed with the Faculty of Engineering and the Faculty of Agriculture, respectively.
- **Purpose or objectives of MOU** : 1. Technical support for the development the draft of 2050 Zero Carbon City Roadmap for Pekanbaru City, 2. Contribution to the circular economy and decarbonization of the palm industry through cooperation in biochar from palm-derived waste (EFB) .

## <Cooperation Image>

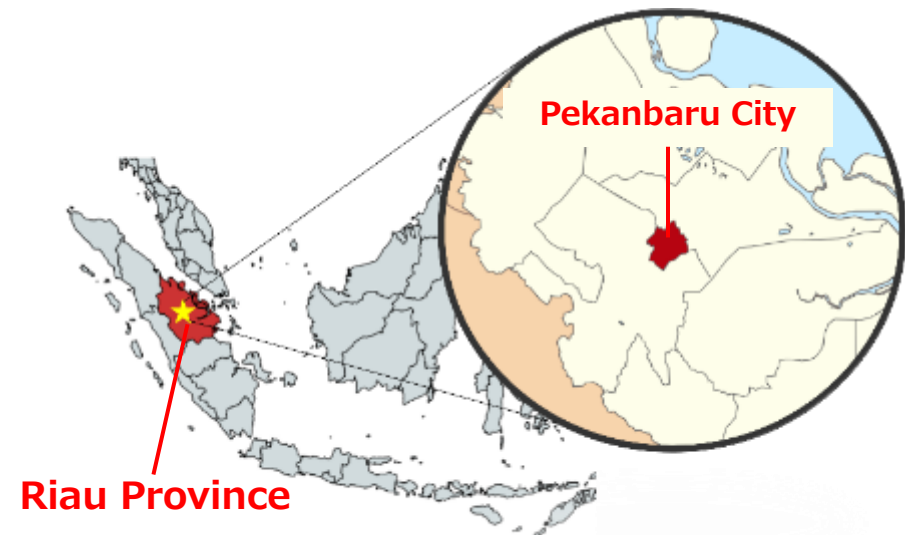
Nippon Koei



UNRI



## <Location>

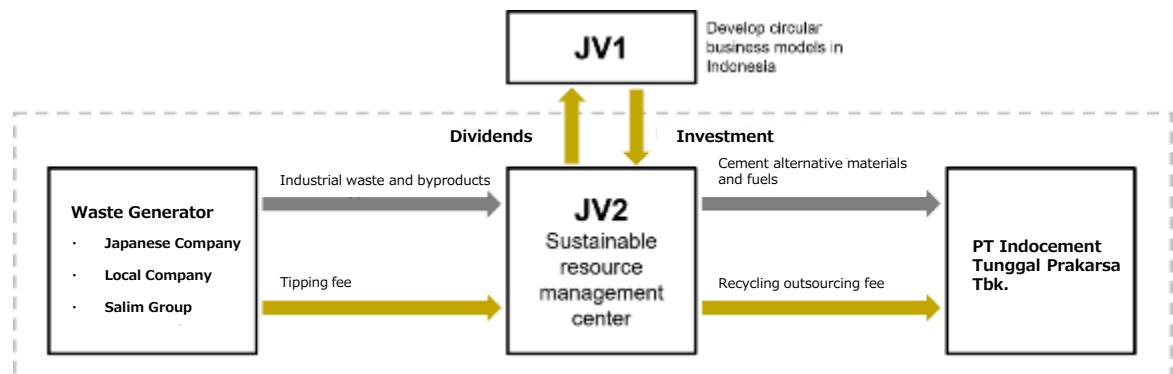


# Agreement between the Amita Group and a local company to establish two joint ventures for 100% recycling business **AMITA**

- **Overview of the Corporate Partnership** : AMITA Group has established a joint venture, "PT Amita Tamaris Lestari (hereinafter, JV1)," with PT Tamaris Prima Energi, a subsidiary of the Salim Group, one of Southeast Asia's largest conglomerates engaged in renewable energy and water supply businesses (September 2024). Additionally, JV1 is set to establish another joint venture, "PT Amita Prakarsa Hijau (hereinafter, JV2)," with PT Sari Bhakti Sejati, a subsidiary of Indonesia's major cement company PT Indocement Tunggul Prakarsa Tbk., to conduct 100% recycling operations locally (October 2024).
- **Significance and Goals of the Collaboration** :  
 JV1... Develop new businesses in the fields of circular economy, carbon neutrality, and nature-positive initiatives aimed at realizing an ecosystem society in Indonesia.  
 JV2 ... Achieve 100% recycling of industrial waste, municipal waste, and biomass resources in Indonesia, supplying alternative raw materials & fuels to the cement industry (with plans to commence operations at the recycling resource manufacturing facility by 2027).
- **URL** : [https://en.amita-hd.co.jp/news/240813\\_indonesia.html](https://en.amita-hd.co.jp/news/240813_indonesia.html)

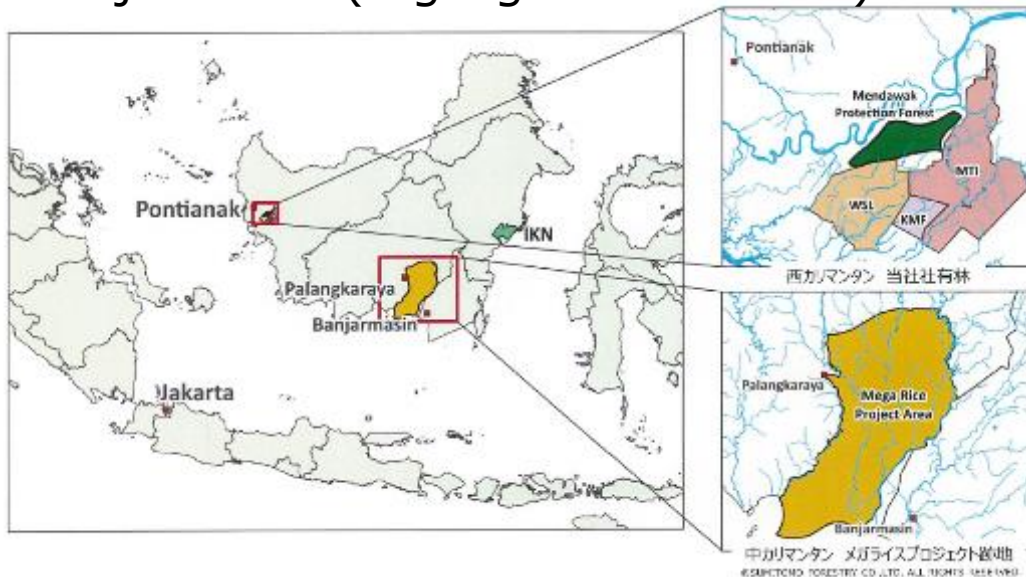


<How our closed-loop resource-recycling business works in Indonesia>



- **Cooperation outline** : Peatland restoration and management was added in the areas of cooperation in Memorandum of Cooperation (MOC) between Ministry of the Environment Japan (MOEJ) and Ministry of Environment and Forestry (KLHK) on Aug. 2024. Implementing arrangement (PKS) was signed by Sumitomo Forestry Indonesia, KLHK and Peatland and Mangrove Restoration Agency (BRGM) on Aug. 2024.
- **Purpose or objectives of MOU** : Sumitomo Forestry plans regional development including peatland restoration, afforestation and surrounding infrastructure development in the Mega Rice Project site in Central Kalimantan. Utilizing the company's peatland groundwater level adjustment technology, the company aims to prevent peatland fires within the project site and reduce CO2 emissions caused by drying, thereby generating carbon credits and securing profits in the future.

【Project Area (Highlighted in Yellow)】



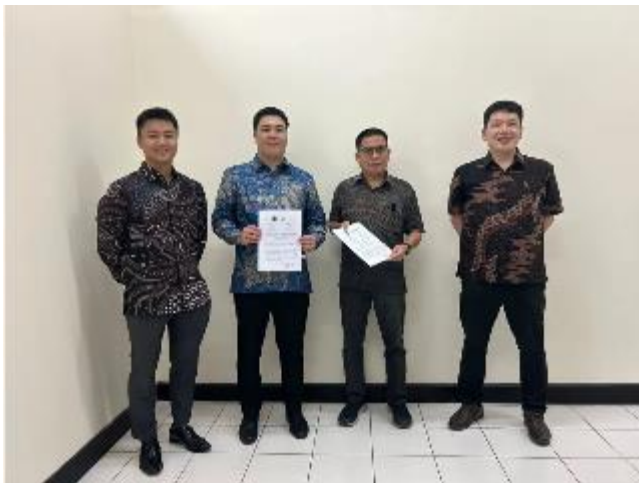
【Peatland】



# MoU between Hasanuddin University and PT Santomo Green Power Management Corp. on Electric Motorbikes and Solar Power

- **MOU Overview** : The project aims to establish a next-generation EV ecosystem for the use of electric bikes, battery swapping systems, and solar power generation, and includes the installation of battery swapping stations in university campuses, provision of electric bikes, workshops and training sessions on electric bikes and solar power generation, and discussions on the use of solar power generation for EV charging.
- **Significance and Aim of this Collaboration** : Contribute to the realization of a carbon-neutral society by supplying environmentally friendly, cost-effective electric bikes and expanding the network of battery swapping stations.
- **Others** : After signing this MOU on June 12, 2024, a Memorandum of Agreement (MoA) for the installation of battery swapping stations (BSS) and solar power generation was signed on August 7, 2024.

<MOU signing ceremony>



<Business model for building an eco-system based on renewable energy (solar) and EVs>





# Introducing agroforestry practices in coffee production that contribute to increasing profitability of local farmers while preventing deforestation

**Cooperation outline** : Promoting the dissemination of coffee cultivation practice where coffee trees are planted between the trees in the forests, as well as planned demonstration of the utilization of biochar within the cultivation system.

**Purpose of the cooperation** : To contribute to emission reductions arising from deforestation and expected soil carbon sequestration through biochar application.



Agroforestry capacity building



Biochar from coffee cultivation residue

**Cooperation outline** : Memorandum of Understanding between Dasar Consulting, a local Malaysian company, and ASUENE to promote ESG and GHG accounting by local companies in Sarawak, Malaysia.

## **Purpose or objectives of MOU :**

- 1) To raise ESG awareness of local companies in Sarawak, Malaysia.
- 2) Deployment and promotion of ASUENE's ESG Rating solution in the region.
- 3) Deployment and promotion of ASUENE's GHG accounting solution in the region.

### **Project site**

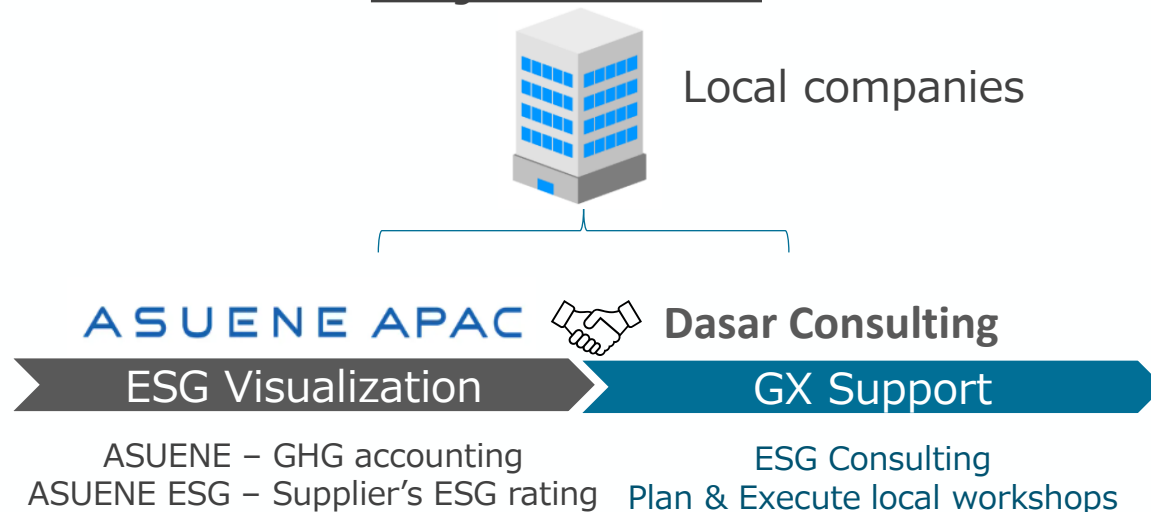
<Sarawak, Malaysia>



<Sarawak>

A state with 13 industrial estates - high decarbonization potential and many projects are underway.

### **Project scheme**

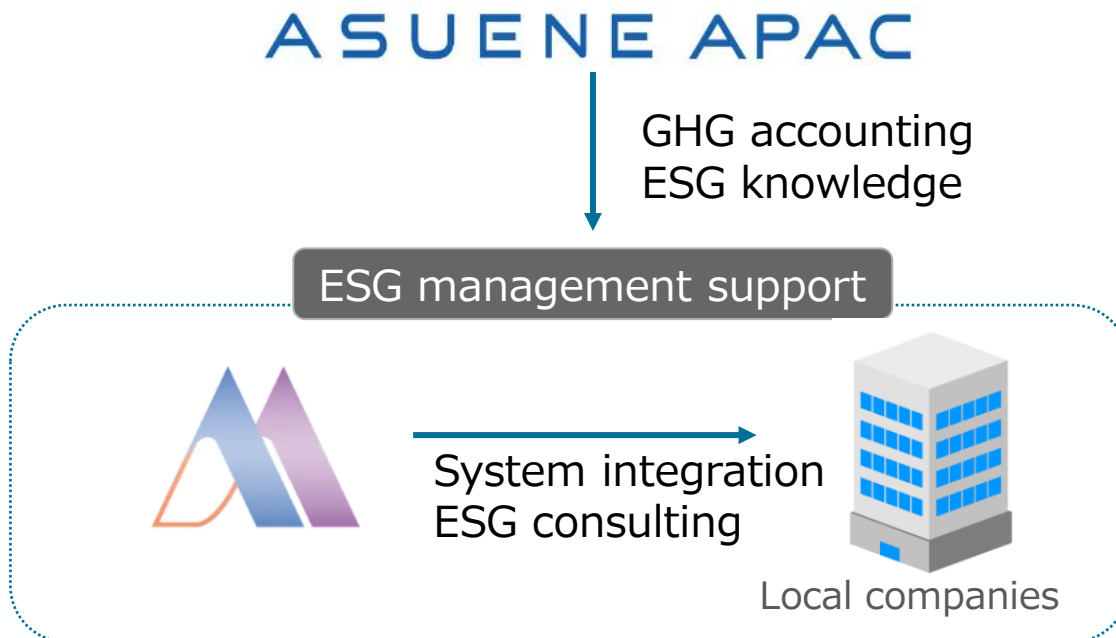


# Cooperation agreement on support for ESG management of local companies

**Cooperation outline** : Signed a collaboration agreement with Mitsusho, a local Malaysian company, for GHG calculation of ASUENE.

**Purpose or objectives of MOU** : Jointly provide corporate training on ESG, carbon credits, GHG accounting, and other topics to local Malaysian companies and promote the use of GHG accounting solutions.

**URL** : <https://prt看mes.jp/main/html/rd/p/000000345.000058538.html>



Signing ceremony



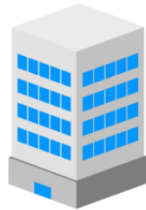


**Cooperation outline :** Signed a collaboration agreement with Maqo Solar, a local Malaysian company, for GHG calculation of ASUENE.

**Purpose or objectives of MOU :** Joint proposal and sales of solar panel installation and visualization of its GHG emission reduction effect to promote decarbonization in Malaysia.

**URL :** <https://prtimes.jp/main/html/rd/p/000000347.000058538.html>

Local companies



ASUENE APAC



MAQO  
ENERGIZING A CLEANER FUTURE

GHG visualization

Solution to reduce GHG

“ASUENE”

- GHG accounting system

Solar Power solutions

Energy management system

Signing ceremony

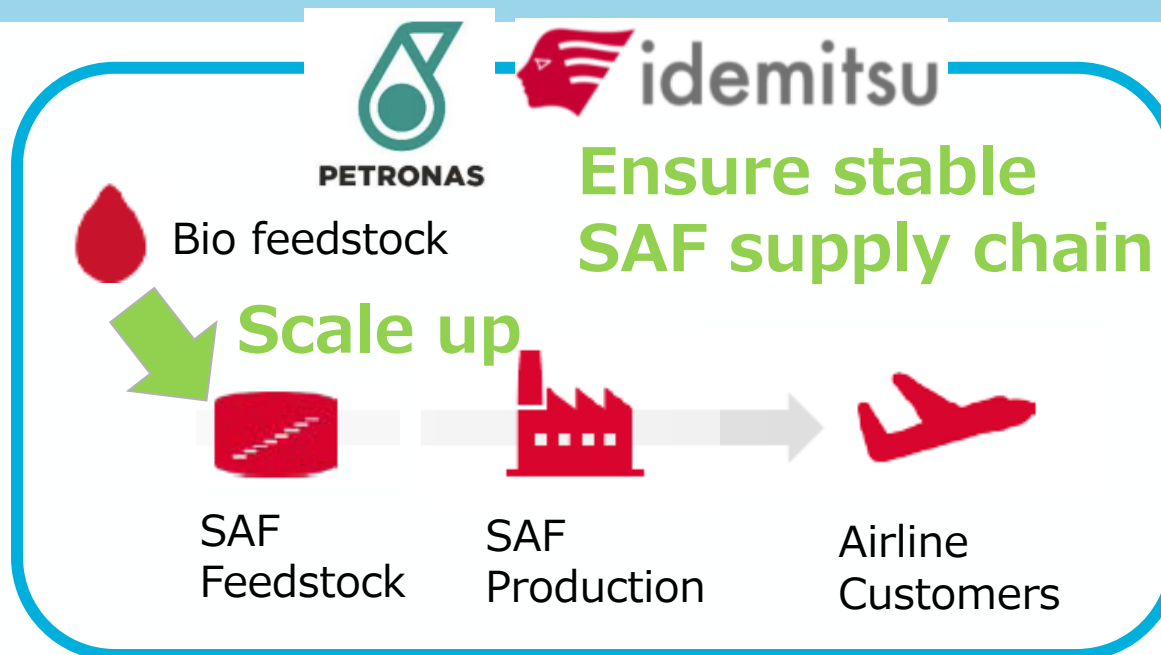




**Cooperation outline** : to enhance capabilities across the supply chain and optimise the route to market for Sustainable Aviation Fuel (SAF) to producing lower carbon energy solutions for customers worldwide.

**Purpose and objectives of MOU** : to conduct a feasibility study to scale-up bio feedstock possibilities including non-edible plants, production cost analysis and security in ensuring a steady and efficient supply chain for the sustainable development of SAF

**URL** : <https://www.petronas.com/media/media-releases/petronas-and-idemitsu-collaborate-accelerate-development-sustainable-aviation> / <https://www.idemitsu.com/en/content/100043647.pdf>



MOU signing ceremony.

**Cooperation outline** : Idemitsu International (Asia) and PETCO Trading Labuan Company will collaborate to evaluate and explore climate abatement projects, focusing on carbon credits and sustainable products, to address sectorial emissions within and outside Malaysia.

**Purpose or objectives of MOU** : The collaboration aims to address sectorial emissions including power generation, transportation, agriculture, waste, and others. By combining the strength and expertise of both companies, the collaboration also aims to assess the viability of the projects through issuance of environmental certificates including carbon credits.



MOU Signing Ceremony

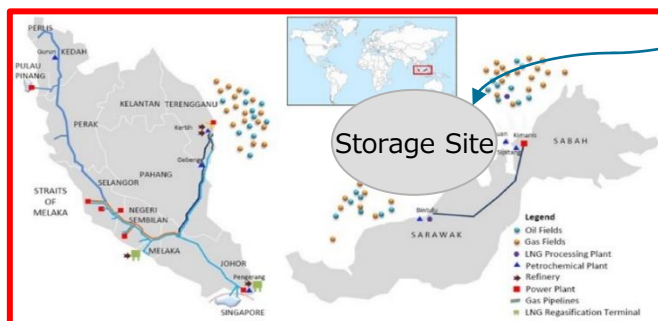
# JAPEX, JGC, and “K” LINE Sign a Storage Site Agreement(SSA) with PETRONAS and PETROS for the CCS Project in Malaysia

**MOU/Corporate outline:** The Japanese consortium comprising JAPEX, JGC Holdings, and Kawasaki Kisen Kaisha (K-Line) is exploring a project in the offshore region of Sarawak, Malaysia, in collaboration with PETRONAS CCS Ventures (PCCSV). SSA was signed with PETROS, the CCUS Resource Manager for Sarawak, to evaluate the depleted M3 gas field as a potential storage site.

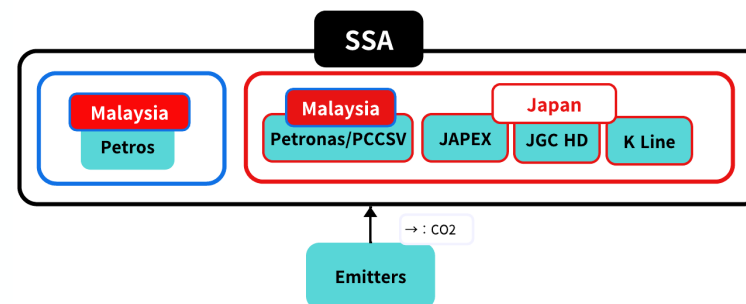
**Purpose or objectives of MOU:** The establishment of a cooperative relationship based on the SSA aims to contribute to the reduction of greenhouse gas emissions and the mitigation of climate change in the Asia-Pacific region. By advancing this project, we aspire to become a pioneer in the CCS industry within the Asia-Pacific region.

**URL :** [https://www.japex.co.jp/en/news/detail/20240229\\_01/](https://www.japex.co.jp/en/news/detail/20240229_01/)

<Map and project site> Japan and others



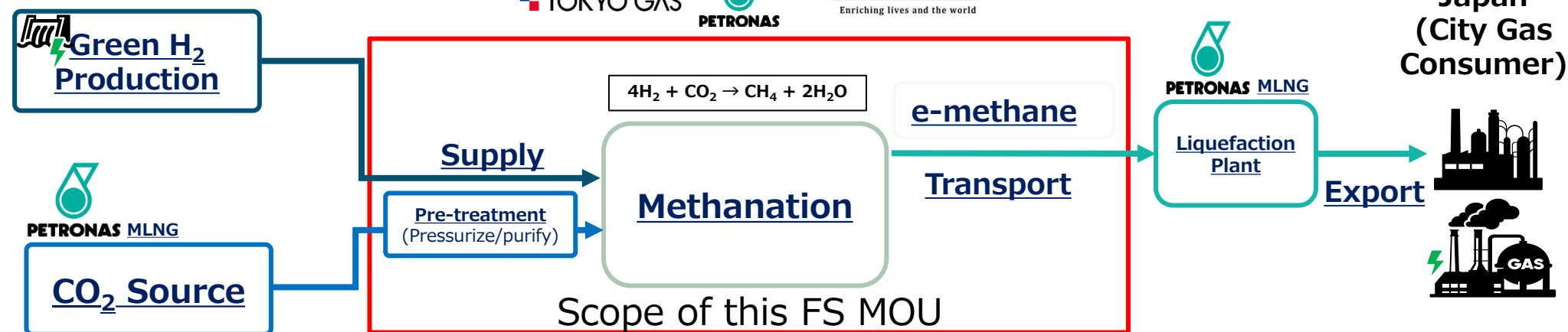
<Project Scheme>



Source : The Malaysian Advantage from Petronas home page and add storage site area on the map

# Memorandum of Understanding (MOU) for Feasibility Study on e-methane production in Sarawak, Malaysia

- **Overview** : PETRONAS Global Technical Solutions Sdn. Bhd., Tokyo Gas and Sumitomo Corporation signed MOU to jointly conduct the Feasibility Study on the e-methane production (methanation) in Sarawak, Malaysia.
- **Purpose** : This study is to export e-methane to Japan with utilization of CO<sub>2</sub> emitted from PETRONAS LNG facility in Malaysia.
- **Remarks** : MOU is executed in September 2023. As the Feasibility Study is substantially complete, it is extended to proceed to the next phase.



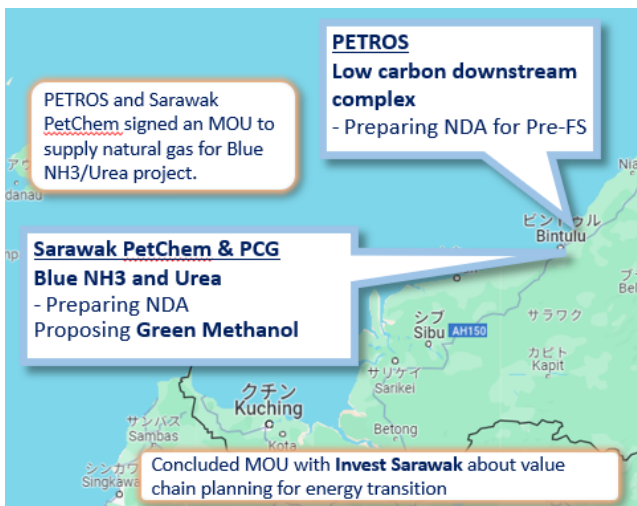


# MOU for Energy Transition in State of Sarawak between Sarawak Invest and Toyo Engineering Corporation

**Cooperation outline** : In order to achieve carbon neutrality in the state of Sarawak, Malaysia, Invest Sarawak and Toyo Engineering Corporation discuss collaboration way for energy transition in the state.

**Purpose or objectives of MOU** : The state of Sarawak has rich natural resources and renewable energy potential. Both parties will promote to establish a value chain and realization of a green energy society in the state.

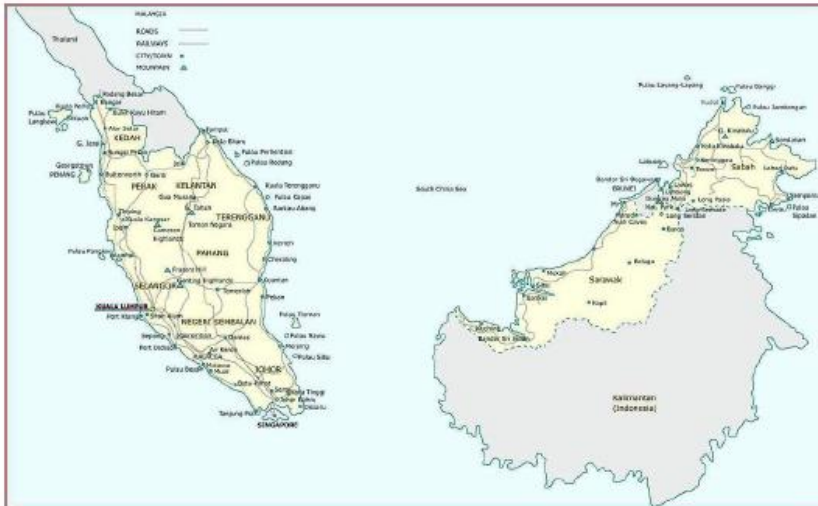
**Other points** : The MOU was signed on April 22, 2024. Both parties has been exchanging information on the development of various projects (blue ammonia, urea, green methanol, SAF, etc.).



# International Tropical Timber Organization (ITTO) Project “Promoting Sustainable Wood Use for Domestic Market in Malaysia”

- **Cooperation outline** : In Malaysia, the project will conduct activities to promote sustainable wood use in the domestic market, including reviewing policies on wood use, promoting partnerships between plantation-farmer co-ops and lead companies, and developing products that meet local market demands.
- **Purpose of the cooperation** : Stabilization of the timber industry by moving away from dependence on exports through the development of domestic markets, and GHG sequestration effects from the wood use.
- **Project period** : Jul. 2024 – Dec. 2025

MAP OF PROJECT AREA



Support for small-scale wood processors



Development of wood products with modern design



※ The photo is from a similar ITTO project in Vietnam that was implemented earlier.

- **Cooperation outline** : Develop sustainable tropical forest management practices based on appropriate monitoring of tropical mangrove forests, incorporating the adaptive capacity of natural and planted forests in Peninsular Malaysia, along with ecological and genetic analysis.
- **Purpose of the cooperation** : Accelerate the elucidation of the relationship between tree productivity and soil microbiota and greenhouse gas dynamics in mangrove ecosystems in the Malay Peninsula and promote understanding of the function and productivity of mangroves.
- **URL** : [https://www.jircas.go.jp/ja/reports/2024/r20240410\\_0](https://www.jircas.go.jp/ja/reports/2024/r20240410_0)

## JIRCAS

- Forestry Division
- Biological Resources and Post-harvest Division



Malaya  
University,  
Malaysia



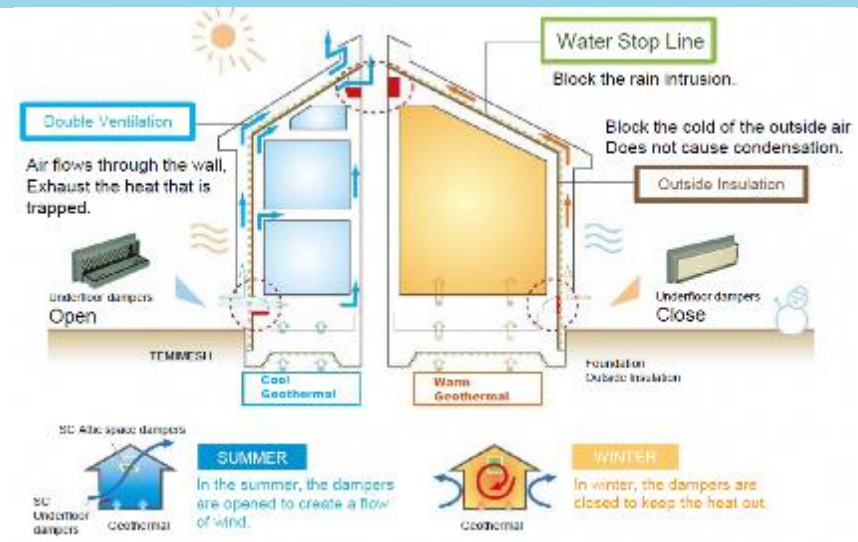
Study site of a dead  
mangrove in peninsula Malay



# Letter of Intent on the Collaboration of Sustainable Timber Construction

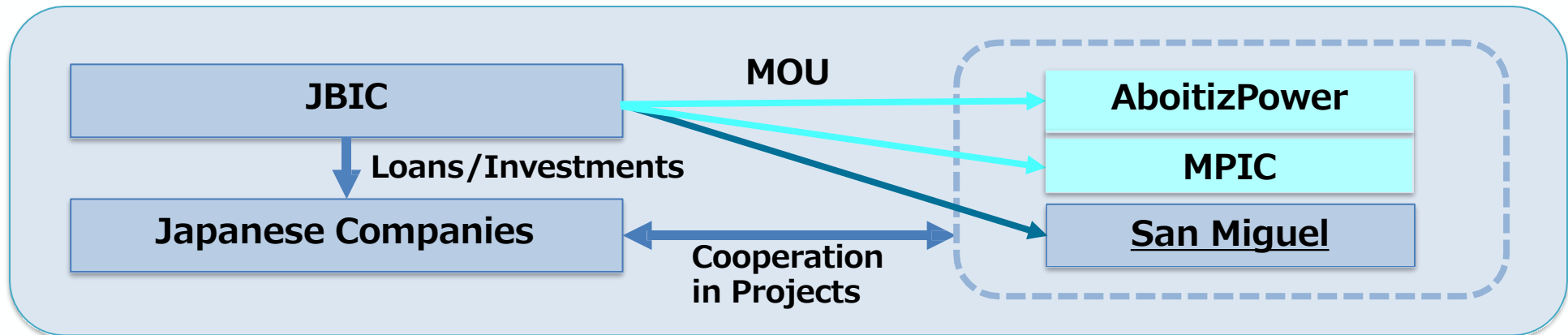
- The Universiti Teknologi Malaysia, Institute for Global Environmental Strategies, Takasago Construction Co. and Saitama City, have agreed to collaborate in sharing information and knowledge and to consider the feasibility of disseminating timber building constructions in Malaysia and its neighboring countries.
- While highly airtight and well-insulated timber houses in Japan are known for their energy saving capacity and as agents to fixate CO<sub>2</sub> emissions, timber is not commonly used in buildings in Malaysia. We aim to find solutions to change the existing environment through collaboration between the public, private, and academic sectors.
- Saitama city's experience with eco-friendly and healthy smart home communities, if combined with the rich knowledge in Malaysia, could serve as a stepping stop for Malaysia to transition to a carbon neutral society.

[https://www.city.saitama.lg.jp/001/009/015/smarthome\\_comunity/sumakomigaiyou/p077114.html](https://www.city.saitama.lg.jp/001/009/015/smarthome_comunity/sumakomigaiyou/p077114.html)



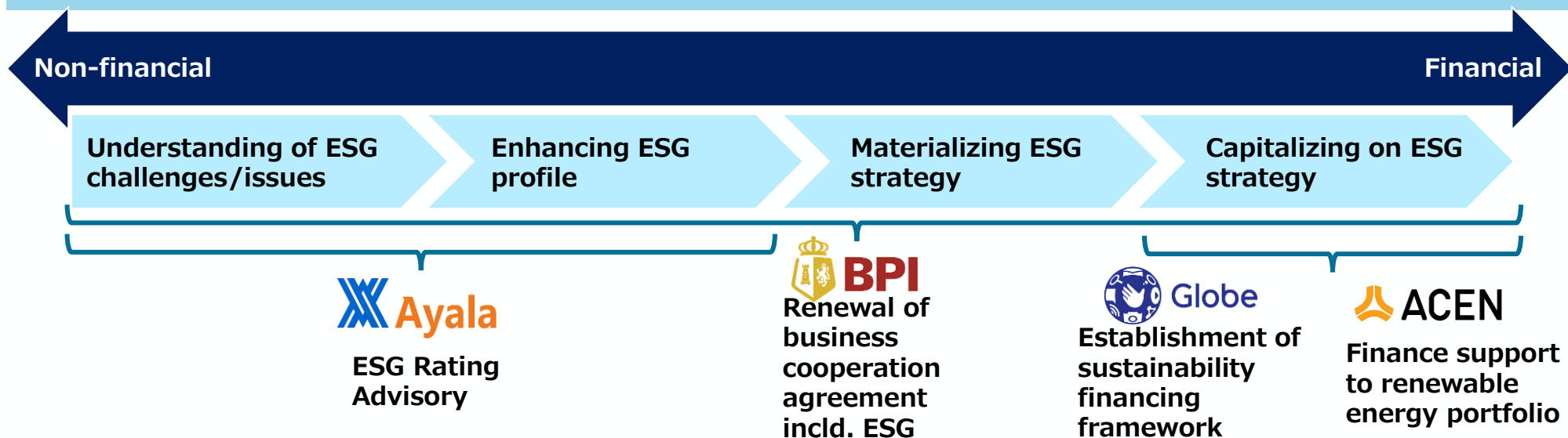


- **Outline:** JBIC signed MOU with San Miguel, to find cooperative projects that involves Japanese business in the certain fields stipulated below. JBIC has already signed MOU with AboitizPower and MPIC for the same purpose.
- **Purpose and objective:** Due to the highly privatized infrastructure sector's nature, the local conglomerates have strong presence in the field and strengthening the connection with them is a key factor for the success. Through these MOU, we aim to promote implementation of concrete projects, which contribute to improve energy efficiency and/or GHG emission reduction together with Japanese corporates.
- **URL:** [JBIC Signs MOU with San Miguel Corporation of Philippines | JBIC Japan Bank for International Cooperation](#)



**Cooperation outline** : Mizuho is providing financial and non-financial services to Ayala Group, one of Philippines' leading conglomerates, to assist Ayala in advancing its group-wide net zero greenhouse gas initiatives; Mizuho is involved in assisting: i) Ayala Corporations in improving its ESG rating scores through enhanced disclosure of its strengthening ESG strategies, ii) Bank of the Philippine Islands in strengthening its ESG initiatives by further collaboration, iii) Globe Telecom in establishing its sustainability financing framework, and iv) ACEN with expanding its renewable energy portfolio through financing activities.

**The significance** : The multifaceted approach aims to combine the financial and non-financial services of the bank to deliver a comprehensive contribution to de-carbonization initiatives of Ayala Group and the Philippines.



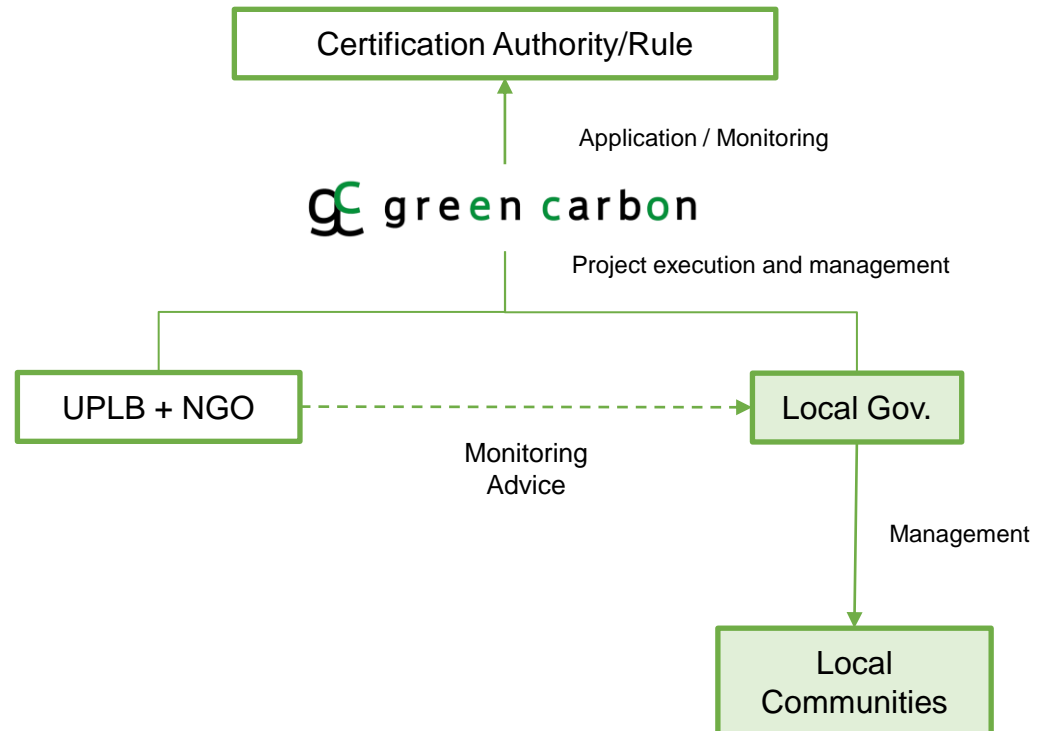
# MOU regarding the generation of carbon credits through mangrove forest restoration in the Philippines green carbon

- **Cooperation outline** : Collaboration aimed at generating carbon credits from mangrove afforestation in the Philippines.
- **Purpose or objectives of MOU** : Aiming to reduce greenhouse gas emissions through the restoration of mangrove forests diminished by past deforestation and natural disasters, and to generate carbon credits as a result.

## Signing Ceremony



## Framework



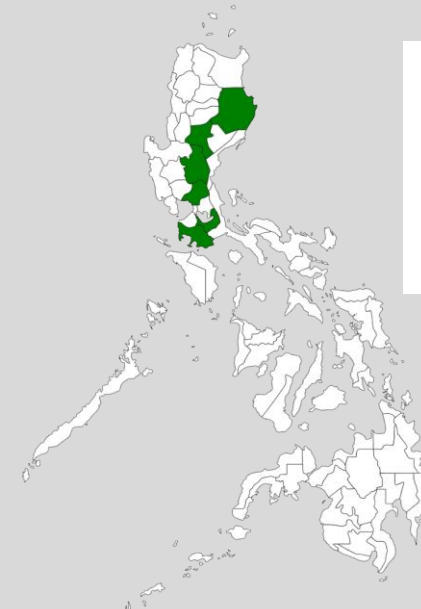
# MOU regarding the generation of carbon credits from rice paddy fields in the Philippines

- **Cooperation outline** : Collaboration aimed at generating carbon credits from rice paddies in the Philippines.
- **Purpose or objectives of MOU** : By jointly demonstrating the methane emission reduction effects of Alternate Wetting and Drying in rice cultivation, the aim is to reduce greenhouse gases across the Philippines.
- **Other points** : Currently, joint demonstration efforts are underway with the aim of starting the project in 6 provinces within the Philippines.

## Joint Research with the University of Philippines



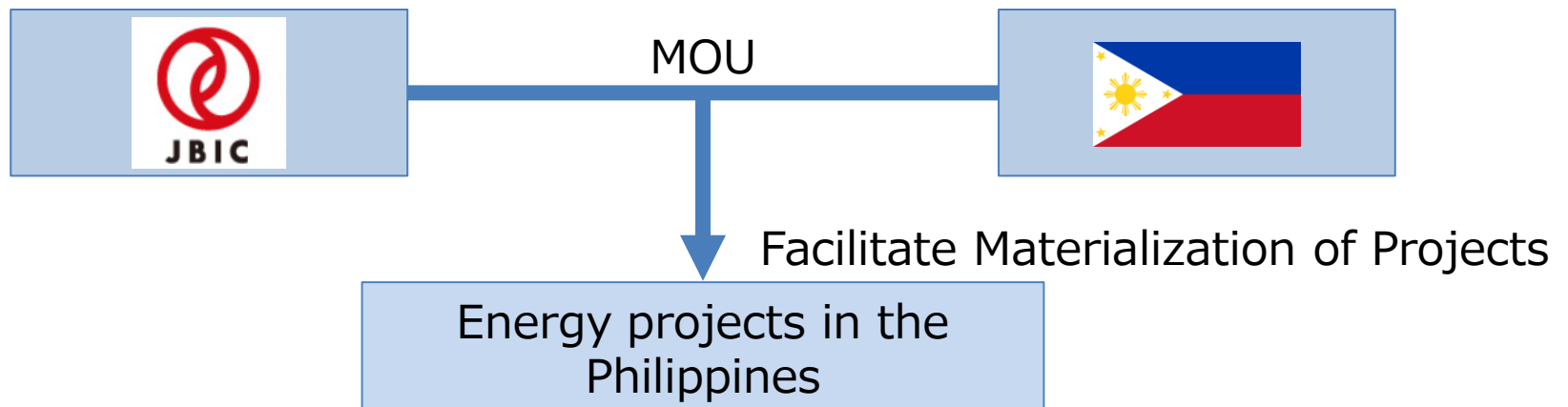
## Map



- Bulacan
- Batangas
- Isabela
- Laguna
- Nueva Ecija
- Nueva Vizcaya



- **Outline:** JBIC signed MOU with the Government of the Philippines, to enhance projects that involves Japanese business that helps the Philippines achieve just transition.
- **Purpose and objective:** Attainment of just transition requires significant financial resources. Through the MOU, JBIC aims to facilitate the materialization of projects by Japanese companies in these areas through cooperation in actualization of JBIC finance in the Philippines.
- **Other Point:** To be signed within this year.



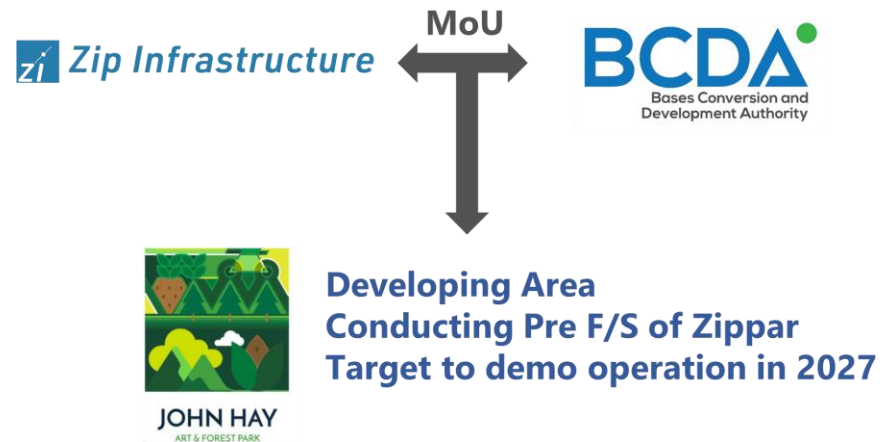
- **Cooperation outline** : Zip Infrastructure & Bases Conversion and Development Authority has concluded a MoU for studies and consideration to implement self driven cable car “Zippar” within BCDA developing areas.
- **Purpose or objectives of MOU** : Considering the feasibility of Zippar in Baguio city Camp John Hay and expand a low cost decarbonized transportation in Asia.
- **URL** : <https://asia.nikkei.com/Business/Transportation/Philippines-resort-picked-for-test-of-Japanese-self-driving-sky-tram>



<Project Image>

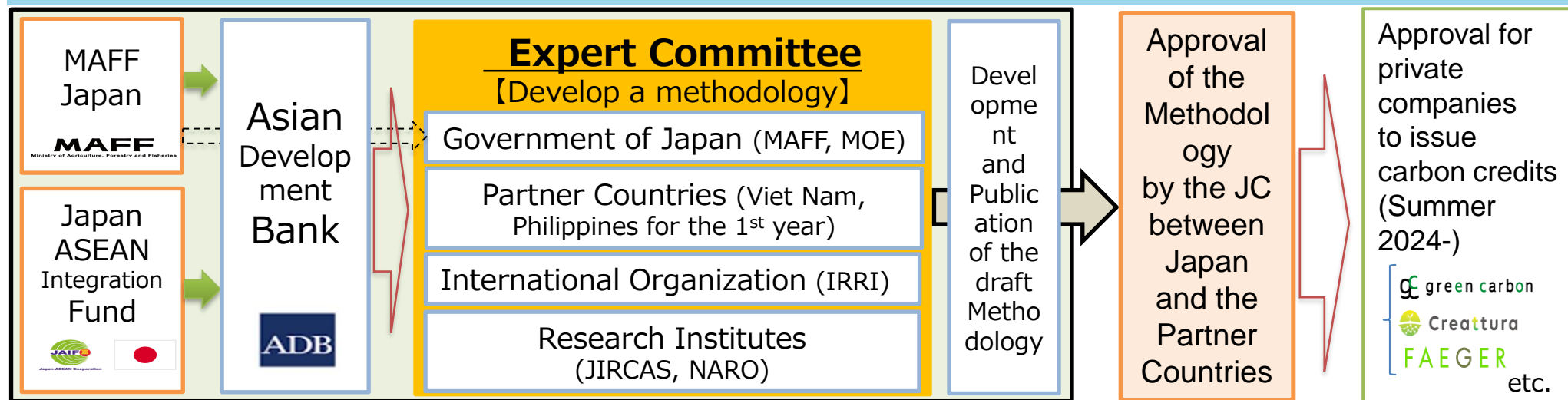


<Scheme>



# Project to support the establishment of sustainable food systems with ADB (Development of the draft Methodology)

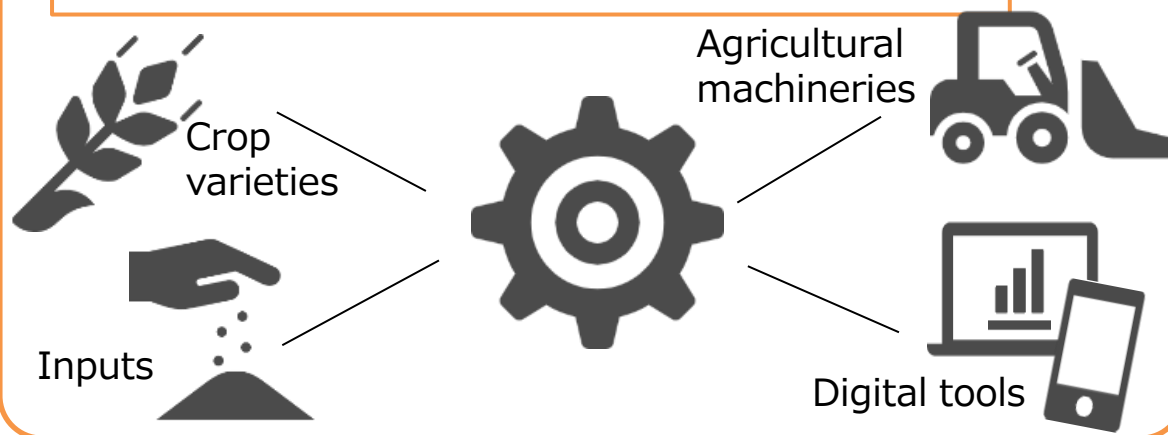
- **Cooperation outline** : A specific approach (draft Methodology) for promoting JCM projects with AWD to reduce methane emissions from rice paddy fields, has been developed with the government of partner countries in the Expert Committee established by ADB and MAFF Japan.
- **Purpose of the cooperation** : It contributes to the generation of carbon credits to be shared between the two countries, thereby contributing to the achievement of each country's NDC. It also helps to increase farmers' incomes.
- **Other points** : The draft methodology in the Philippines was completed and published in June 2024. It will be submitted to the Joint Committee (JC) for approval. In addition, the draft methodology in Viet Nam is under review.



# Development of rice cropping systems toward carbon neutrality and food security in ASEAN countries

- **Cooperation outline** : Low-carbon crop management practices and cropping systems will be developed with the long-term goal of achieving carbon neutrality while also ensuring food security.
- **Purpose of the cooperation** : To develop rice cropping systems toward carbon neutrality and food security in ASEAN countries.
- **Other points** : Kick off meeting held on 24 June 2024.

Co-development & testing of integrated low carbon farming practices



Kick off meeting  
at IRRI Headquarters  
in Philippine, Los Baños



- **Cooperation outline** : Develop GHG reduction technologies by combining Filipino rice varieties and water management.
- **Purpose of the cooperation** : Reducing methane emissions in global boiling is an urgent issue, and it is imperative to develop technologies that meet the current situation in Southeast Asia in order to contribute to reducing emissions from rice paddies, one of the main methane emitters.

JIRCAS  
•Crop, Livestock and  
Environment Division



PhilRice,  
Philippines



Seed multiplication in a pot  
at screening house

- **MOU outline** : Develop and implement technologies for soil carbon sequestration, soil runoff mitigation, and river water quality conservation that are resilient to climate change, harmonize with the environment, and enable resource recycling.
- **Purpose of the MOU** : Aim to reduce the environmental impact from agricultural land at the national level through deployment technologies such as carbon sequestration technology that has been developed in sugarcane fields in the Philippines.
- **URL** : <http://www.jircas.go.jp/ja/release/2024/press202409>

## JIRCAS

- Tropical Agriculture Research Front
- Crop, Livestock and Environment Division
- Rural Development Division



BSWM,  
Philippines



# Memorandum of cooperation between the Ministry of the Environment of Japan and the Department of Environment and Natural resources of the Republic of the Philippines in the field of environmental protection

- **Cooperation outline** : The MOU covers a wide range of areas, including climate change, plastic pollution, and biodiversity conservation. Signed in December 2023 in the Commemorative Summit for the 50th Year of ASEAN-Japan Friendship and Cooperation, with the presence of leaders of both countries.
- **Purpose or objectives of MOU** : The scope of cooperation will be expanded beyond waste management to include comprehensive environmental cooperation in areas such as climate change, plastic pollution, and biodiversity.
- **URL** : [https://www.env.go.jp/en/press/press\\_02268.html](https://www.env.go.jp/en/press/press_02268.html)



Photo by Cabinet Office



Photo by Cabinet Office

# MEMORANDUM OF UNDERSTANDING ON DEVELOPING LOW/ZERO-CARBON CITY IN COOPERATION BETWEEN QUEZON CITY AND OSAKA CITY

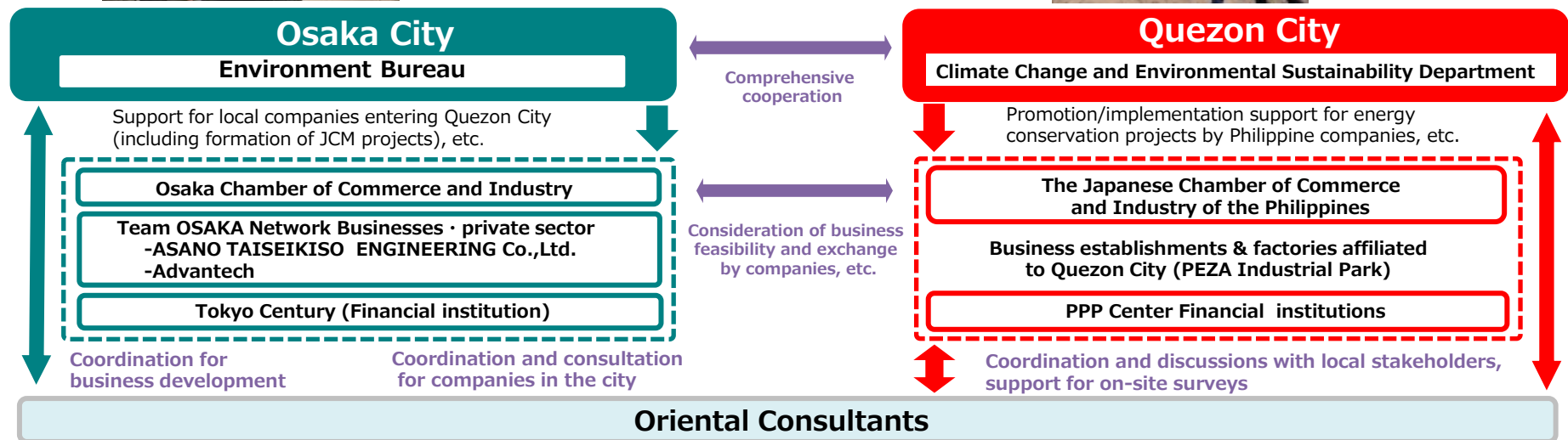
- **Cooperation outline** : The project will promote public-private partnership in areas of climate change and environmental sustainability, as well as information sharing and capacity building on knowledge and policies to create a low/zero-carbon city in Quezon City.
- **Purpose or objectives of MOU** : The municipalities will undertake comprehensive efforts to promote project formation including private companies with environmental technologies.
- **Other points** : A policy dialogue was held on July 9 this year; a business matching seminar for project formation is scheduled to be held in Quezon City in October.



Policy Dialogue between  
Quezon City and Osaka City  
at Osaka City Hall  
(July 9, 2024)



Technical Site Visit of  
Biomass Power Plant  
(July 10, 2024)





# Business cooperation agreement on ESG management support for SMEs

**Cooperation outline** : Signing agreements to co-operate with Singapore Manufacturing Federation for GHG accounting support.

**Purpose or objectives of MOU** : Promotion of the ESG assessment program (CSOaaS program) for small and medium-sized manufacturing companies promoted by SMF and ASUENE's GHG calculation solution.

**URL** : <https://prtmes.jp/main/html/rd/p/000000365.000058538.html>

ASUENE APAC

GHG accounting system  
Consulting knowledge

ESG Assessment Program



SINGAPORE  
MANUFACTURING  
FEDERATION  
新加坡制造商总会  
SINCE 1932

ESG consulting



Small-Mid Manufacturer

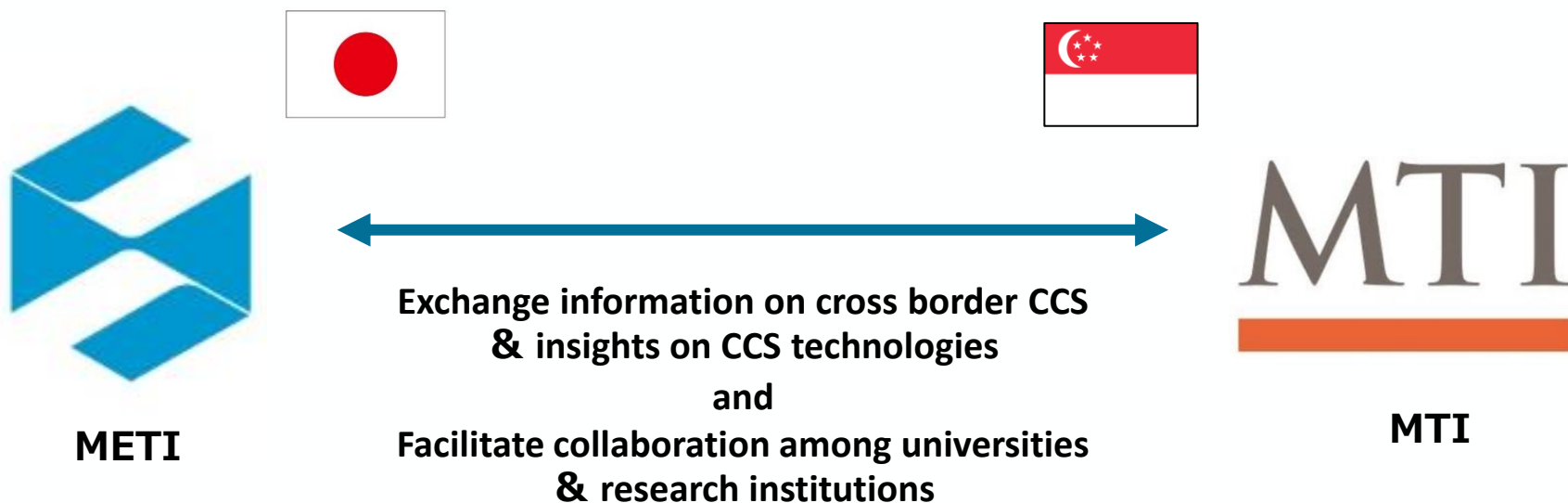
## Signing Ceremony



# MOC on Carbon Capture Storage(CCS) between METI and MTI

**Cooperation outline** : To promote bilateral cooperation on CCS through exchanging information on best practices and existing rules for cross border CCS, exchanging insights on CCS technologies as well as facilitating partnerships amongst universities and research institutions across both countries.

**Purpose or objectives of MOU** : Exchanging knowledge and ideas to better deploy two countries' respective CCS projects



# MOU between Maritime and Port Authority of Singapore and NYK Line to advance maritime sustainability

**Cooperation outline** : MPA and NYK signed MOU to deepen partnership to materialize sustainable maritime industry .

**Purpose or objectives of MOU** : MOU defines three areas of potential collaboration which is decarbonization, digitalization and manpower development. Especially in decarbonization area, MPA/NYK aim to have concrete milestones and deliverables for ammonia fueled vessel (including ammonia bunkering vessels) related initiatives.

**Other points** : MPA and NYK had signing ceremony on 2<sup>nd</sup> July and have set working groups for each scope to deepen collaboration.

**URL** : [MPA and NYK Forge Partnership to Advance Maritime Sustainability, Digitalisation and Manpower Development | NYK Line](#)

## 〔Examples for MOU scope〕

### ①Decarbonization

- ◆ Promoting safe use of fuel ammonia through initiatives on ammonia fueled vessels (including bunkering vessels)
- ◆ Training for seafarers on ammonia fueled vessels
- ◆ Use of other alternative fuels such as methanol and bio-fuels
- ◆ Methodology to accelerate decarbonization investments

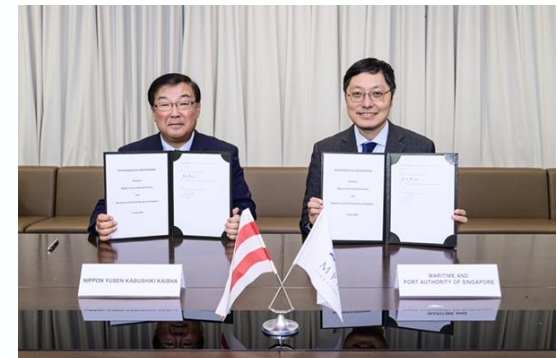
### ②Digitalization

- ◆ Digitalization to improve efficiency of shipping operations

### ③Manpower Development

- ◆ Discuss on initiatives such as leadership programs for maritime talents

## 〔MOU signing ceremony〕



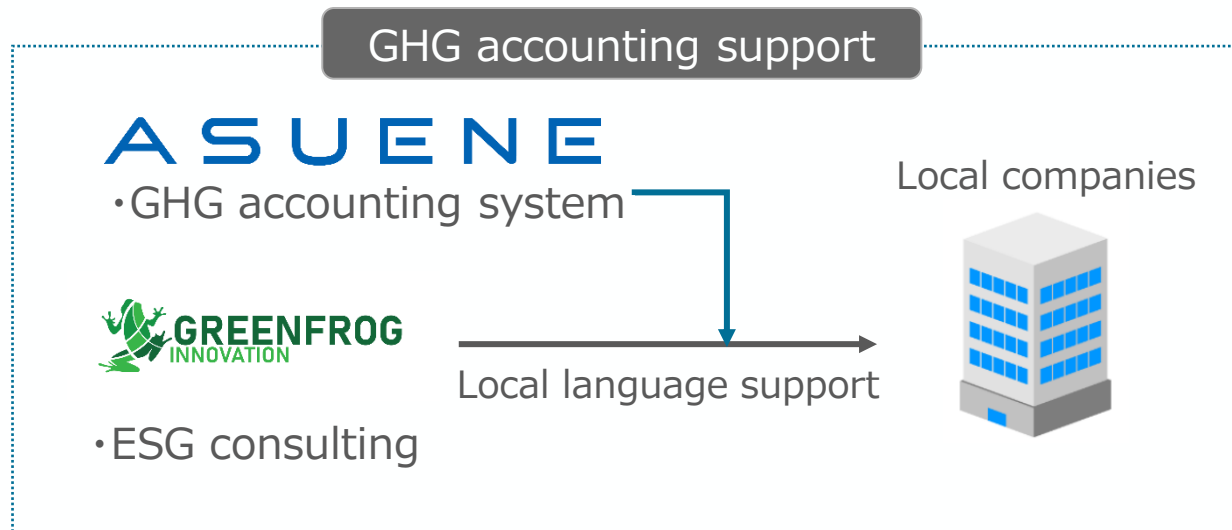
From left: NYK President Takaya Soga  
MPA Chief Executive Teo Eng Dih

# Agreement to collaborate on promoting GHG accounting for local companies

**Cooperation outline** : Signed a collaboration agreement with Green Frog Innovation, a local company in Thailand, for GHG calculation of ASUENE.

**Purpose or objectives of MOU** : Formed an alliance with Green Frog Innovation, which has experience in ESG consulting in Thailand, to implement a local Thai language calculation support for local Thai companies.

**Others**: In collaboration with local government agencies, major financial institutions, and local decarbonization solution partners, the company aims to build a more comprehensive support system to accelerate corporate decarbonization efforts in Thailand.



## Signing Ceremony





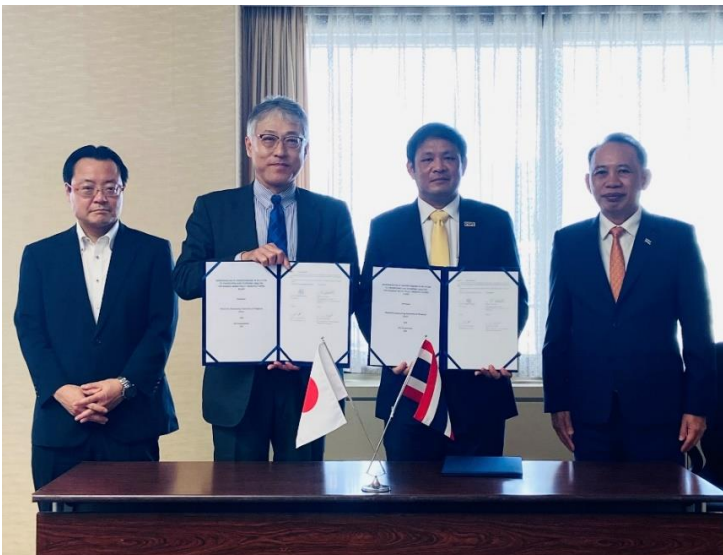
**Cooperation outline** : Joint study for biomass fuel production and combustion demonstration at the biggest thermal power station in Thailand named Mae Moh Power Plant, which is owned by EGAT.

**Purpose and Objective of MOU** : To contribute to achievement of carbon neutrality by 2050 in Thailand by studying both biomass fuel production and utilization.

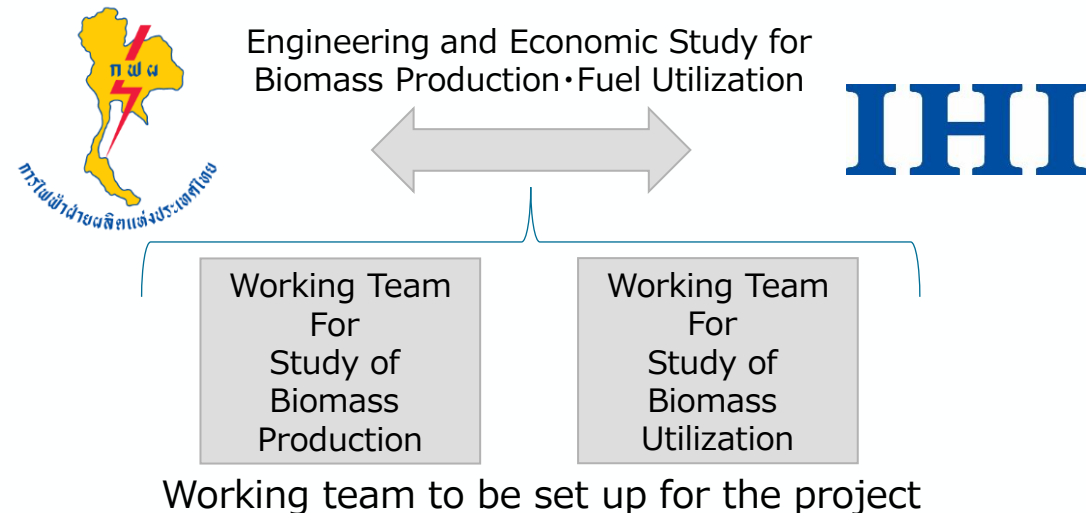
**Other points** : The Project will be completed by the end of 2025.

**URL:** [https://www.ihico.jp/en/all\\_news/2024/resources\\_energy\\_environment/1200865\\_13691.html](https://www.ihico.jp/en/all_news/2024/resources_energy_environment/1200865_13691.html)

<Picture of signing MOU>



<Project Scheme>



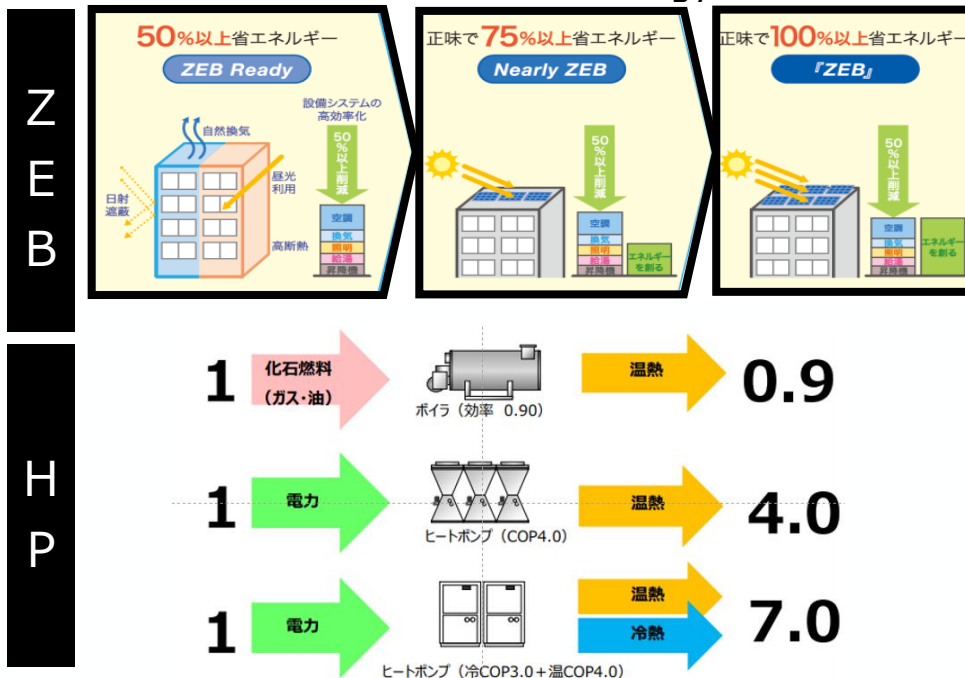
# RD for THE PROJECT FOR PROMOTION OF ENERGY EFFICIENCY BY INTRODUCING ZERO ENERGY BUILDING (ZEB)/ZERO ENERGY HOUSE (ZEH) AND HEAT PUMPS IN THAILAND between JICA and DEDE

**Cooperation outline :** Aims to strengthen the C/P's capacity to promote energy conservation and improve energy efficiency in the industrial, commercial and residential sectors by deepening knowledge and understanding of ZEB (Zero Energy Building)/ZEH (Zero Energy House) and heat pumps

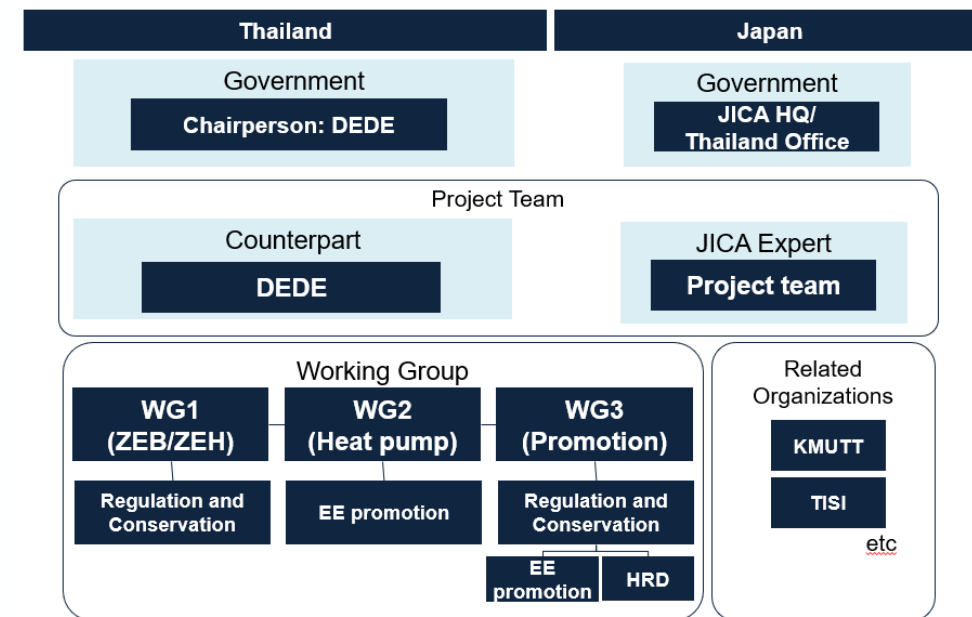
**Purpose :** To contribute to the formulation of energy conservation policies and technology evaluation standards on the demand side

**Other Points :** In line with the past JICA's cooperation on energy efficiency capacity building and Heat pump survey.

## <Outline of Technology>



## <Organization Structure>

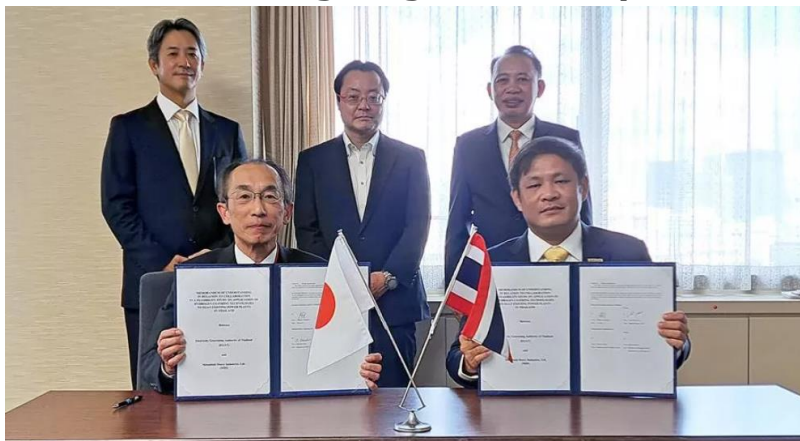


- DEDE : Department of Alternative Energy Development and Efficiency
- KMUTT : King Mongkut's University of Technology Thonburi
- TISI : Thai Industrial Standards Institute

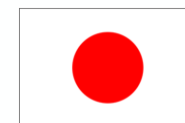
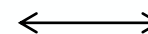
# MOU on Gas Turbine Hydrogen Co-firing Technology between EGAT and Mitsubishi Heavy Industries, Ltd.

- **Overview of MOU** : To accelerating decarbonization of energy in Thailand, EGAT, state-owned electricity company in Thailand, and Mitsubishi Heavy Industries, Ltd. commence discussions on study for introducing hydrogen co-firing technologies at power plants owned and operated by EGAT.
- **Aim of the cooperation** : By promoting clean fuel power generation in the existing power plant of EGAT which is Thailand's power producer, EGAT and MHI aim to support achieving Thailand's goal "Carbon neutrality by 2050 and net zero emission by 2065".
- **Others** : This MOU extends the ongoing partnership between MHI and EGAT to focus on hydrogen co-firing, building on an MoU signed in 2022 to research and exchange information on clean fuel power generation, clean hydrogen, and CCUS (CO2 Capture, Utilization, and Storage) technologies.

## <MOU Signing Ceremony>



Cooperation  
Discussion



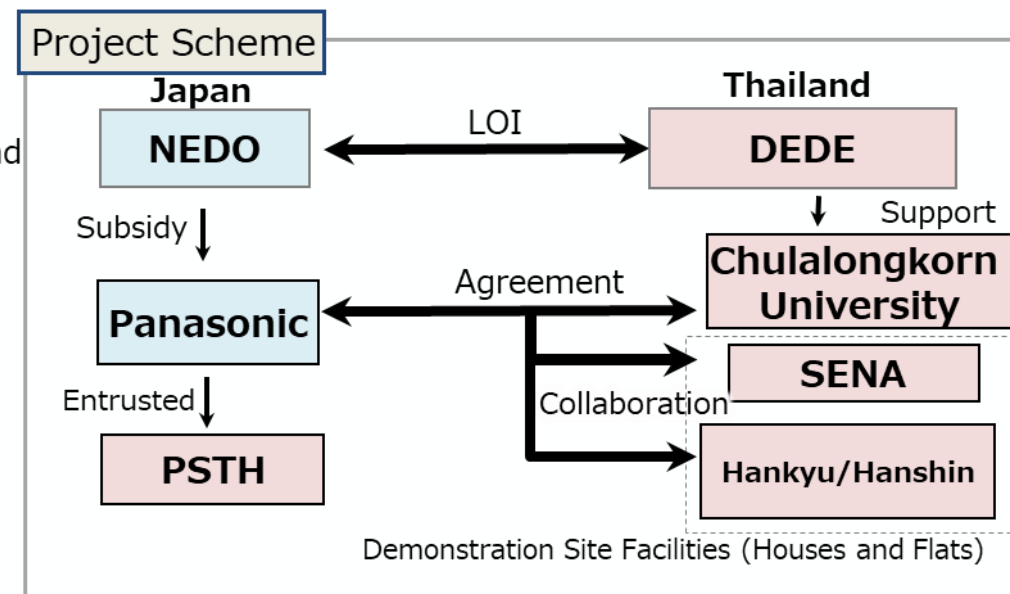
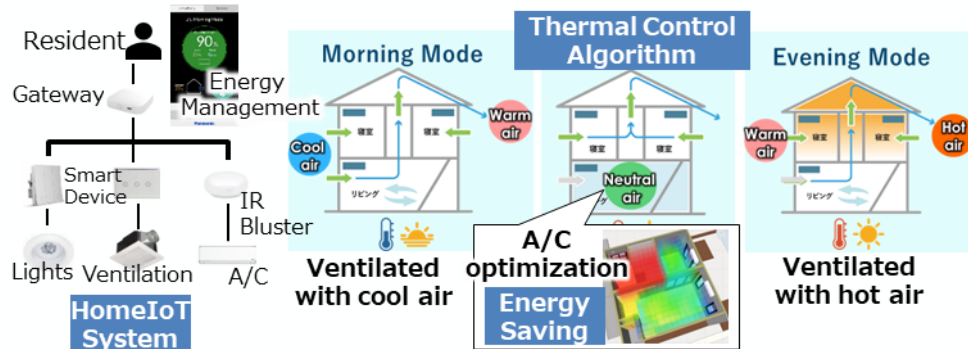
# LOI agreement regarding cooperation in Home IoT demonstration research with DEDE, Ministry of Energy of Thailand

**LOI overview** : An LOI agreement between NEDO and DEDE (Department of Alternative Energy Development and Efficiency), Ministry of Energy of the Kingdom of Thailand regarding cooperation on "demonstration for the development of thermal control HomeIoT system and living space design technology for Thai homes".

**Significance** : A comprehensive LOI agreement was reached between NEDO and the Ministry of Energy, which is the ministry headquarters over DEDE, and was announced at the 6th Japan-Thailand Energy Policy Dialogue. It led to an LOI agreement with DEDE, which is the government agency involved in this project.

URL : [https://www.nedo.go.jp/ugoki/ZZ\\_101308.html](https://www.nedo.go.jp/ugoki/ZZ_101308.html)

An IoT system that predicts the thermal environment based on outside temperature and room temperature information, balances heat through coordinated control of air conditioners and ventilation and reduces cooling load while maintaining comfort.

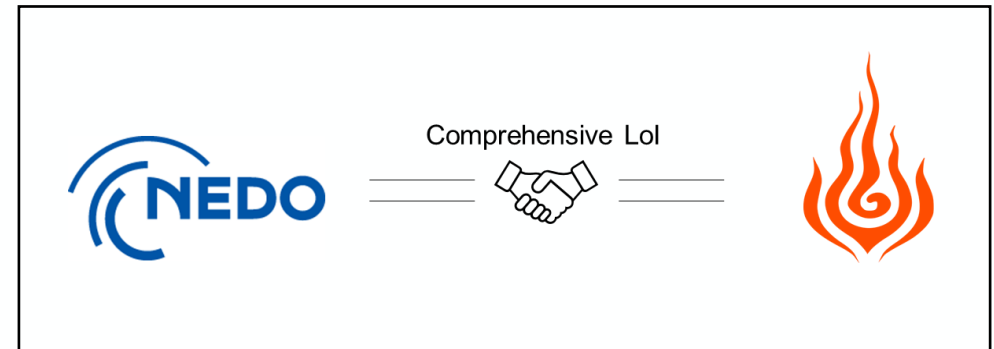




**LOI overview** : NEDO agreed comprehensive LOI agreement with the Ministry of Energy of the Kingdom of Thailand regarding cooperation in the fields of energy conservation, alternative energy, and decarbonized environment-related technology.

**Objectives** : The two countries will promote bilateral cooperation towards decarbonizing the country and accelerating the energy transition, contribute to collaborative cooperation under AZEC, and further support on NEDO international demonstration projects.

URL : [https://www.nedo.go.jp/ugoki/ZZ\\_101297.html](https://www.nedo.go.jp/ugoki/ZZ_101297.html)



**Cooperation outline** : Zeroboard, provider of a cloud service for calculating and visualizing GHG emissions, has formed a business alliance with Banpu NEXT, a smart energy solutions provider under Banpu group.

**Purpose or objectives of MOU** : The collaboration will involve Banpu NEXT's clients in calculating and visualizing their GHG emissions using Zeroboard, and then taking action to further reduce their emissions. The two companies will co-create innovations including GHG emission reduction solutions such as solar projects, and EV charging, EV fleet management with both companies to expand their decarbonization management services.



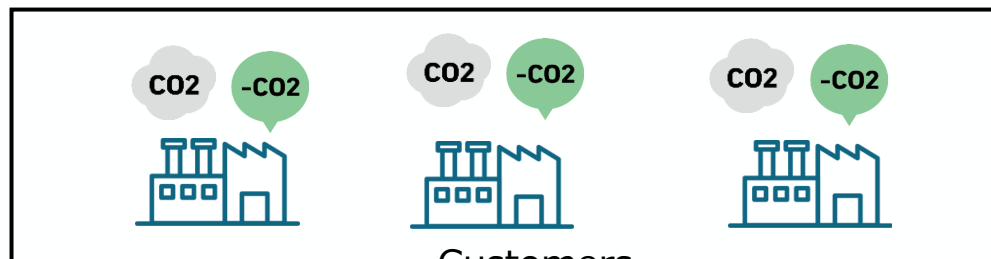
GHG Calc. & Visualization



Partnership



GHG Reduction Solutions



Customers

**Cooperation outline** : Zeroboard, provider of a cloud service for calculating and visualizing GHG emissions, has formed a business alliance with FDI group, which provides ESG consulting service to companies.

**Purpose or objectives of MOU** : Zeroboard will support the calculation, disclosure and reduction of GHG emissions with the cloud service, while FDI will provide decarbonisation consulting services to meet the diverse needs of customers in Thailand.



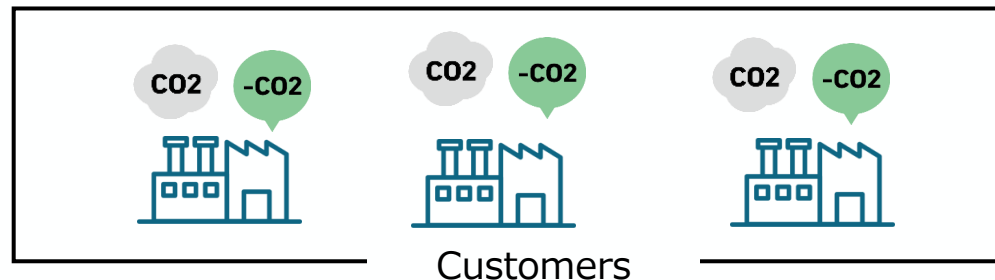
GHG Calc. & Visualization



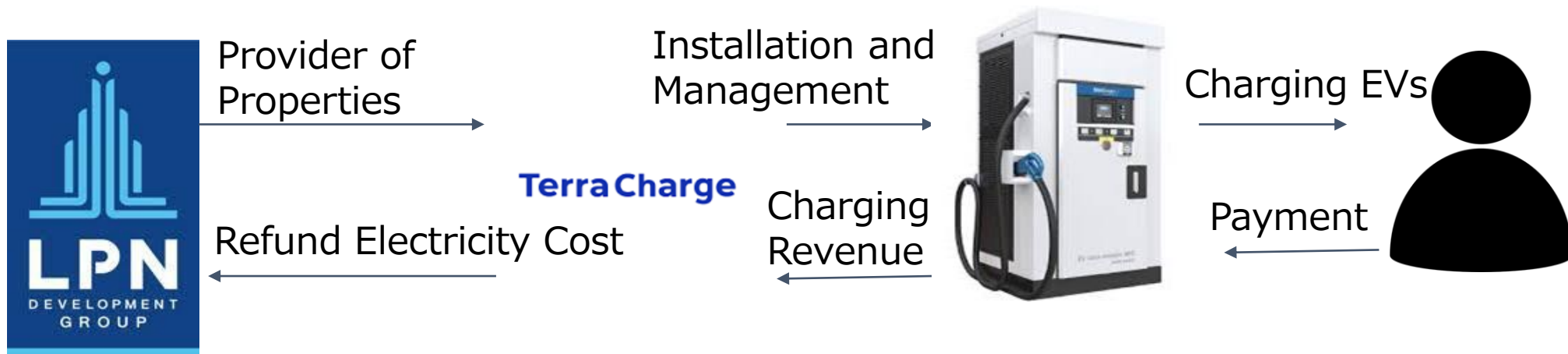
Partnership



Consulting Service



- **Cooperation outline** : To expand Thailand's EV charging infrastructure by installing Terra Charge's EV chargers in the properties of LPN, a leading real estate company in Thailand, over a long-term period.
- **Purpose or objectives of MOU** :
  - ① By introducing Terra Charge's EV chargers to a major real estate company in Thailand, the initiative will contribute to expanding Thailand's EV charging infrastructure.
  - ② The installation will also increase the local presence of Terra Charge's EV chargers.



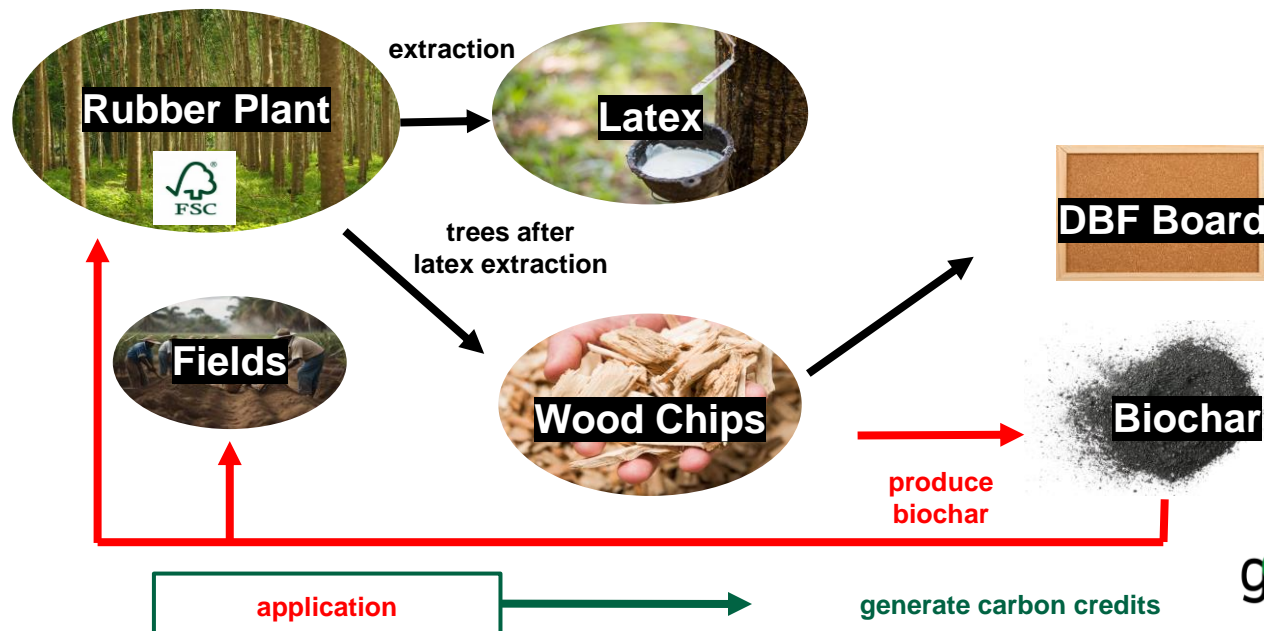


- **Cooperation outline** : Collaboration aimed at generating carbon credits from biochar in Thailand.
- **Purpose or objectives of MOUs** : Biochar produced from rubber trees that used to be felled after latex extraction will be used as a soil amendment or in cement mixtures to achieve carbon sequestration (with Rubber Authority of Thailand and The Siam Cement Group Public Company Ltd.). Additionally, the goal is to generate carbon credits through this process.

## Project Scheme



การยางแห่งประเทศไทย  
Rubber Authority of Thailand



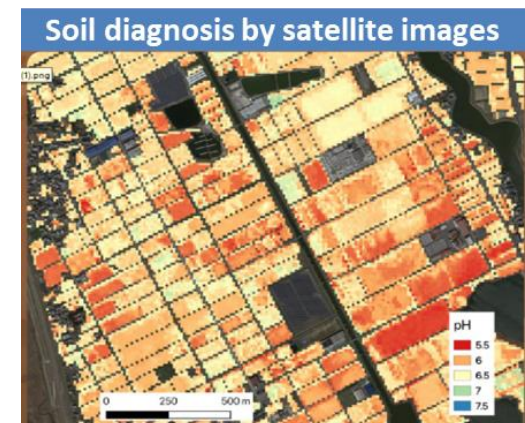
# Contributing to the reduction of fertilizers through automatic plotting technology and soil diagnosis of farmland using satellite data

- **Cooperation outline :**

- Automatically plotting farmland borders by AI using satellite images.
- Based on the plotting results, diagnosing soil conditions and evaluating crop growth of each farmland compartment.

- **Purpose of the cooperation :** Contributing to reduce GHG emission from fertilizers through reducing application of them.

- **Other points :** After testing the automatic plotting and soil diagnosis of paddy fields in Thailand, considering the further trials in Philippines, etc.



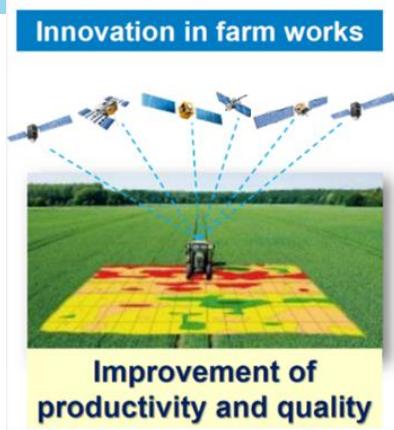
# Contributing to increase of productivity and reduction of working hours through auto steering system

## ● Cooperation outline :

- Auto steering system (GNSS receiver, electric steering wheel, console, etc.) automatically makes optimal work line by using high accuracy positioning data from GNSS satellites. The tractor automatically drives along the line, does not require tractor operation, and improves productivity.
- It can be installed not only the tractor, but also existing rice transplanters and harvesters, so productivity is expected to improve in all processes.

## ● Purpose of the cooperation : Contributing to reduce GHG emission from fossil fuel through efficient operation of tractors.

## ● Other points : Demonstration of improved productivity through auto steering system using rice transplanted on rice planting work in rice cultivation in Thailand, and continue the demonstration in sugarcane fields in Thailand.



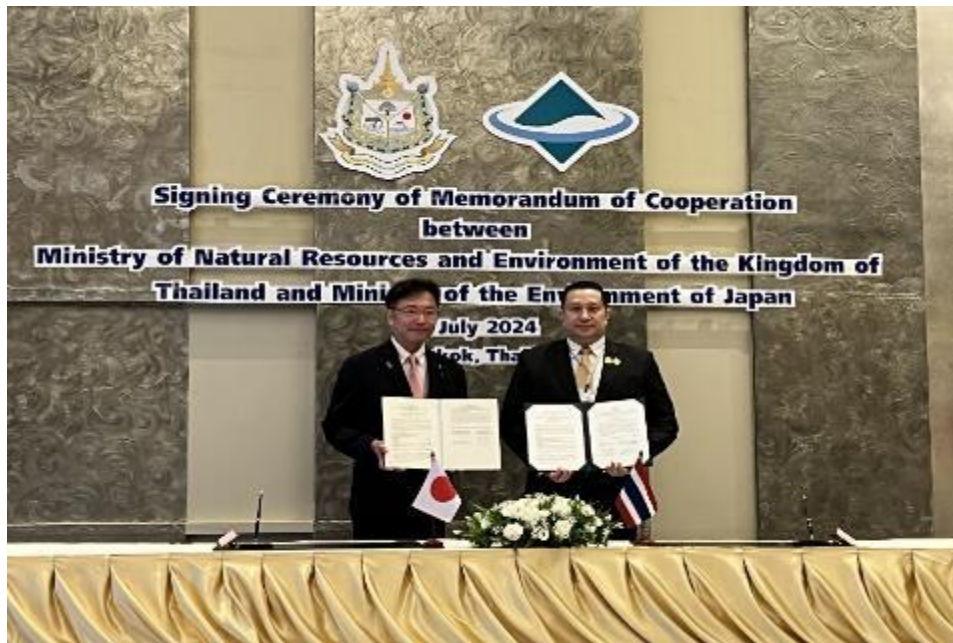


- ### Exchange of views with a government of APO member on soil carbon sequestration



# Memorandum of cooperation between The Ministry of the Environment of Japan and the Ministry of Natural resources and Environment of the Kingdom of Thailand on environmental cooperation

- **Cooperation outline** : The Memorandum of Cooperation (MOC) was renewed at the occasion of the 4<sup>th</sup> Policy Dialogue held in Bangkok, Thailand early July this year. Areas of cooperation include measures against climate change and waste management.
- **Purpose or objectives of MOC** : Purpose of the MOC is to further strengthen the relationship between two countries and to promote environmental cooperation through knowledge sharing, capacity development and others.
- **URL** : [https://www.env.go.jp/en/press/press\\_03027.html](https://www.env.go.jp/en/press/press_03027.html)



# Memorandum of Cooperation on the Joint Crediting Mechanism between the Government of Japan and the Government of the Kingdom of Thailand

- **Cooperation outline** : A new Memorandum of Cooperation to implement the JCM consistent with the guidance on cooperative approaches referred to in Article 6.2 of the Paris Agreement and Thailand's domestic policies.
- **Purpose or objectives of MOC** : This new MOC will further enhance bilateral cooperation and ensure that the JCM is implemented consistent with Article 6.2 of the Paris Agreement to avoid double counting.
- **URL** : <https://www.jcm.go.jp/th-jp/information/516>

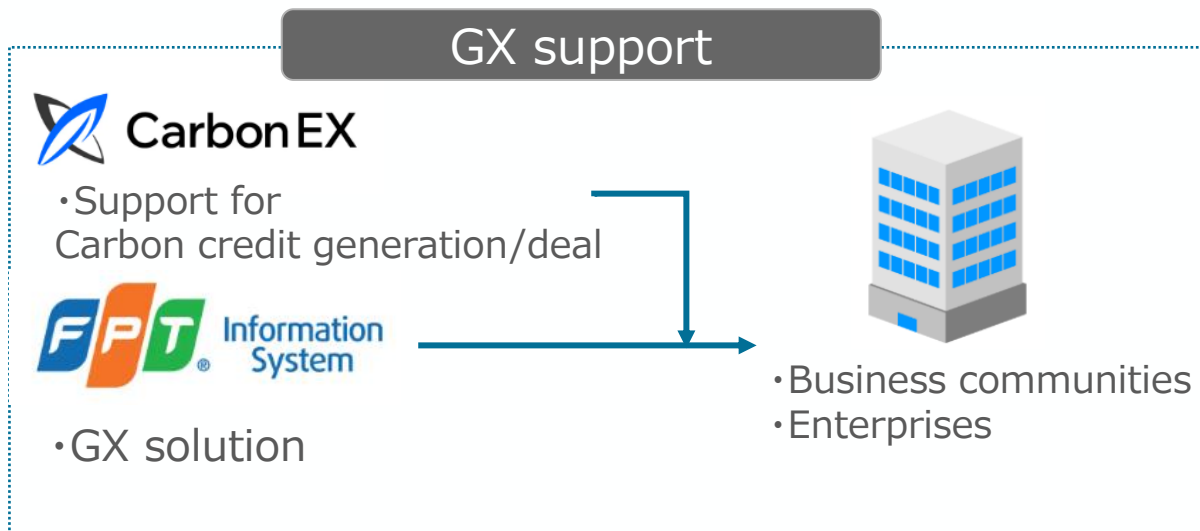


# MOU on Partnership for Carbon Credit Business Development in Vietnam

**Cooperation outline :** Memorandum of Understanding between FPT Vietnam and Carbon EX for partnership in the supply and sale of carbon credits.

**Purpose or objectives of MOU :** Contribution to the development of carbon credit business in Vietnam with collaboration between Carbon EX's carbon credit trading platform/carbon credit creation consultation, and FPT's deep experience and expertise in IT solutions.

**URL :** <https://prtimes.jp/main/html/rd/p/000000320.000058538.html>



## Signing ceremony



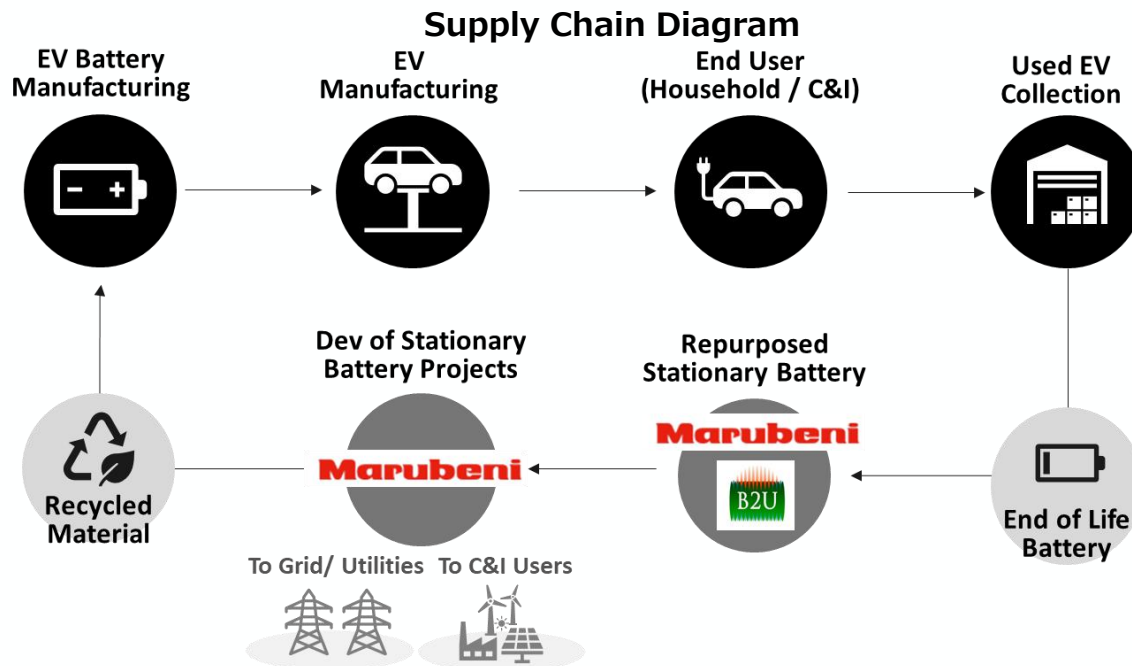


# Marubeni-Vin Fast MOU to Repurpose Used EV Batteries in Circular Economy

**Cooperation outline :** To conduct a demonstration of battery energy storage systems with used VinFast's EV batteries and a collaboration in the creation of businesses with used EV batteries in circular economy.

**Purpose of MOU :** Aiming to strengthen its strategic partnership with Vingroup for the Vietnamese government's goal of achieving virtually zero greenhouse gas emissions by 2050 and the global decarbonized society.

**Other Points :** Collaboration with B2U Storage Solutions, Inc., a U.S. start-up company (Invested by Marubeni) having proprietary technology



**MOU Signing Ceremony**

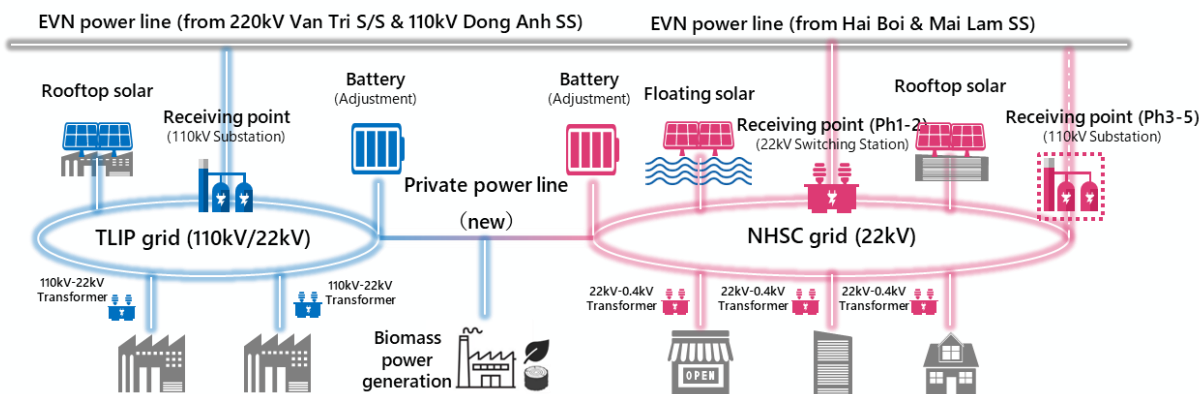




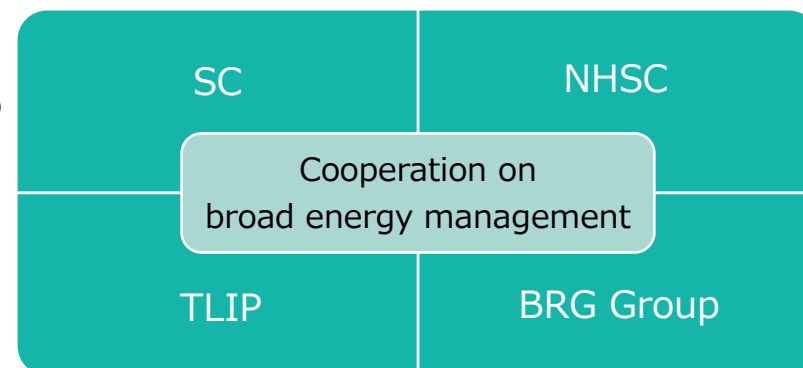
# MOU for decarbonization/energy management cooperation among Sumitomo Corporation (SC), Thang Long Industrial Park (TLIP), North Hanoi Smart City (NHSC) and BRG Group

- **Cooperation outline:** To promote decarbonization in industrial parks & townships through various measures: (a) by expanding renewable energy supply in TLIP, where Japanese manufacturers are concentrated and in NHSC, which is being developed as a Japan-Vietnam flagship project; (b) by implementing broad energy management between the two projects and (c) by introducing energy-saving solutions.
- **Purpose/objectives of this MOU:** In addition to expanding on-site renewable energy sources such as rooftop solar power and biomass power, we are considering to build energy-saving houses by introducing technologies such as high-efficiency air conditioning/heat pump water heater, with the vision of creating a model case for future industrial parks & township projects in Vietnam.
- **Others:** In addition to the current rooftop solar power (28MWp in TLIP and 68MWp in all TLIPs in operation as of June-24, expected to reach 38MWp in TLIP and 100MWp in all TLIPs by FY25), we intend to introduce biomass power, in which Japanese manufacturers have strengths. Furthermore, heat pump air conditioning/hot water equipment and central cooling technology are expected to be installed at NHSC to reduce electricity demand. Subsequently, TLIP & NHSC will be connected by private lines to create single grid to realize a broad energy management/microgrid that integrates civilian and industrial use.

## <Broad energy management/microgrid overview>



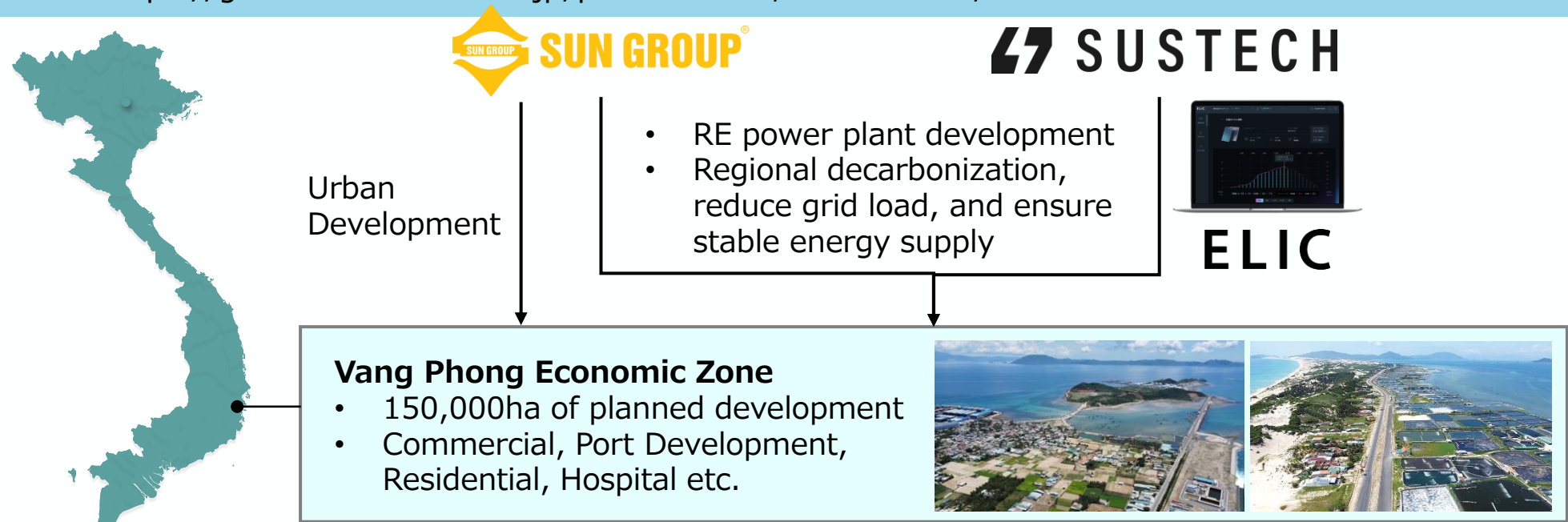
## <Scheme>



**Cooperation outline:** Utilizing Sustech's decentralized energy management platform "ELIC", this initiative aims to achieve expansion of renewable energy, decarbonization of the entire region while ensuring stable energy supply in the development of Van Phong Economic Zone led by Sun Group.

**Purpose and objectives:** Develop a green energy model in Vietnam, where high proportion of renewable energy already in use, by reducing the load on the grid while accelerating power development for further economic growth.

**URL :** <https://global.sustech-inc.co.jp/press-release/2024041701/>



# MOU for Development of Nearshore Wind Power Project in Tra Vinh Province by TTVN, TTP and Tokyo Gas

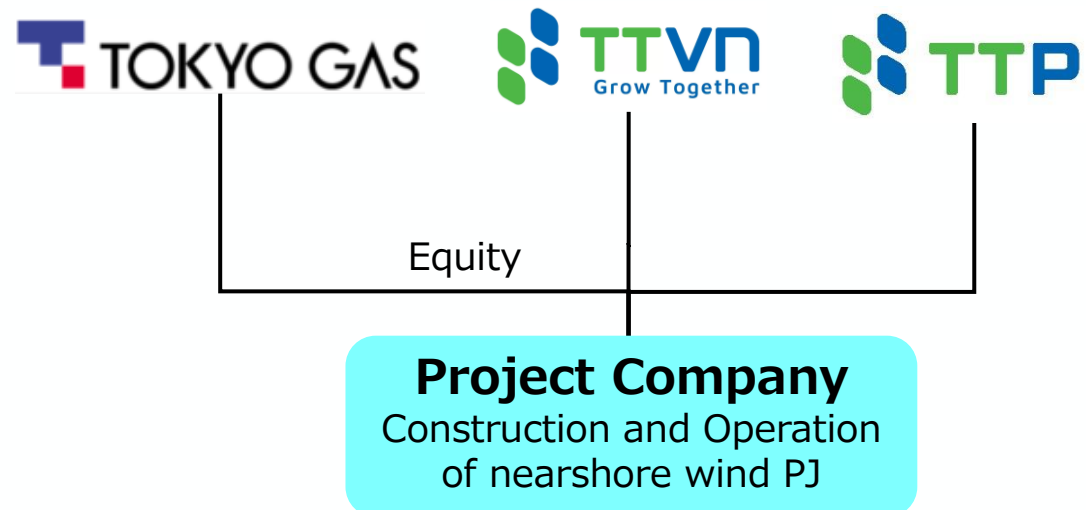
**Cooperation outline** : Truong Thanh Viet Nam Group(“TTVN”), Truong Thanh Energy(“TTP”), and Tokyo Gas agree to cooperate on the development of a nearshore wind power project (total capacity: 48MW) in Tra Vinh Province, Vietnam.

**Purpose or objectives of MOU** : Aim to meet electricity demand in Vietnam and reduce greenhouse gas emissions by co-development of nearshore wind, leveraging TTVN, TTP and Tokyo Gas’ abundant knowledge, experience of power project development.

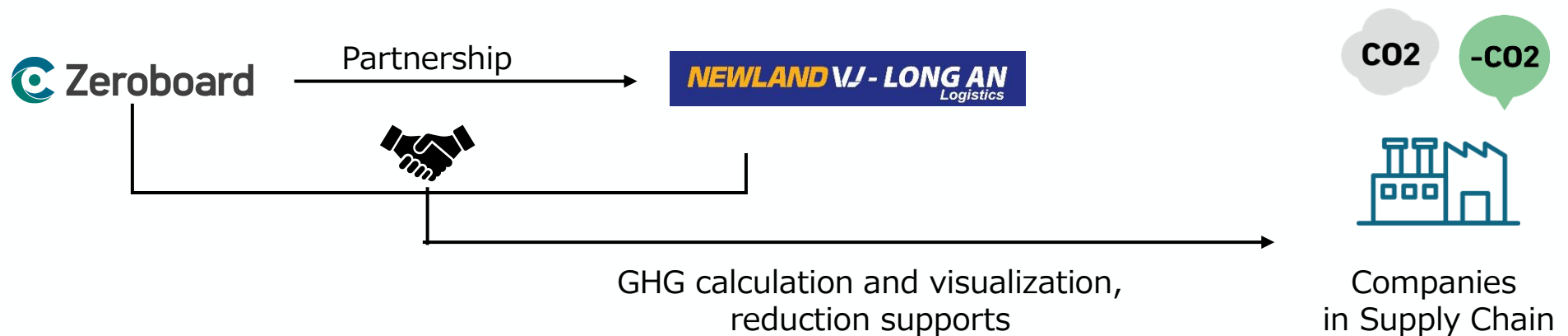
Tra Vinh Province, Vietnam



Scheme



- **Cooperation outline** : Zeroboard and NLVJLA (New Land Vietnam Japan Long An), a group company of Sojitz Corporation, have entered into a partnership to provide decarbonization management support to their suppliers in the company's supplier chain.
- **Purpose or objectives of MOU** : By combining NLVJLA and Sojitz's network in Vietnam with Zeroboard's expertise in GHG emissions calculation and reduction support, we aim to establish a model case for decarbonized management in the logistics industry by calculating and visualizing not only NLVJLA's own GHG emissions but also those of the entire supply chain.



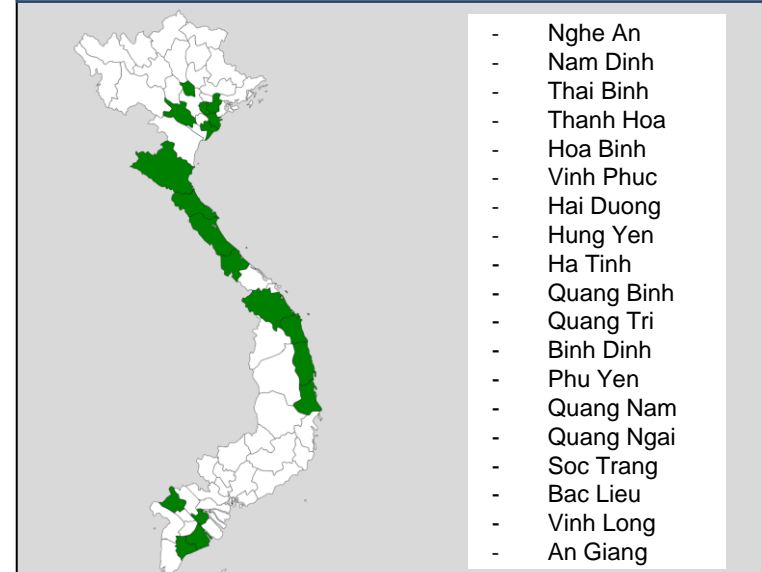


- **Cooperation outline** : Collaboration aimed at generating carbon credits from rice paddy fields in Vietnam.
- **Purpose or objectives of MOUs** : Aiming to achieve the reduction of greenhouse gas emissions from rice cultivation and improve the livelihoods of farmers. This will be accomplished through the implementation of methane-reducing practices in rice paddies (with Vietnam National University of Agriculture (VNUA)), the generation of carbon credits from these practices (with Agricultural Science Institute for Southern Coastal Central of Vietnam), and the enhancement of the value of rice (with INTAD Co.,Ltd.).

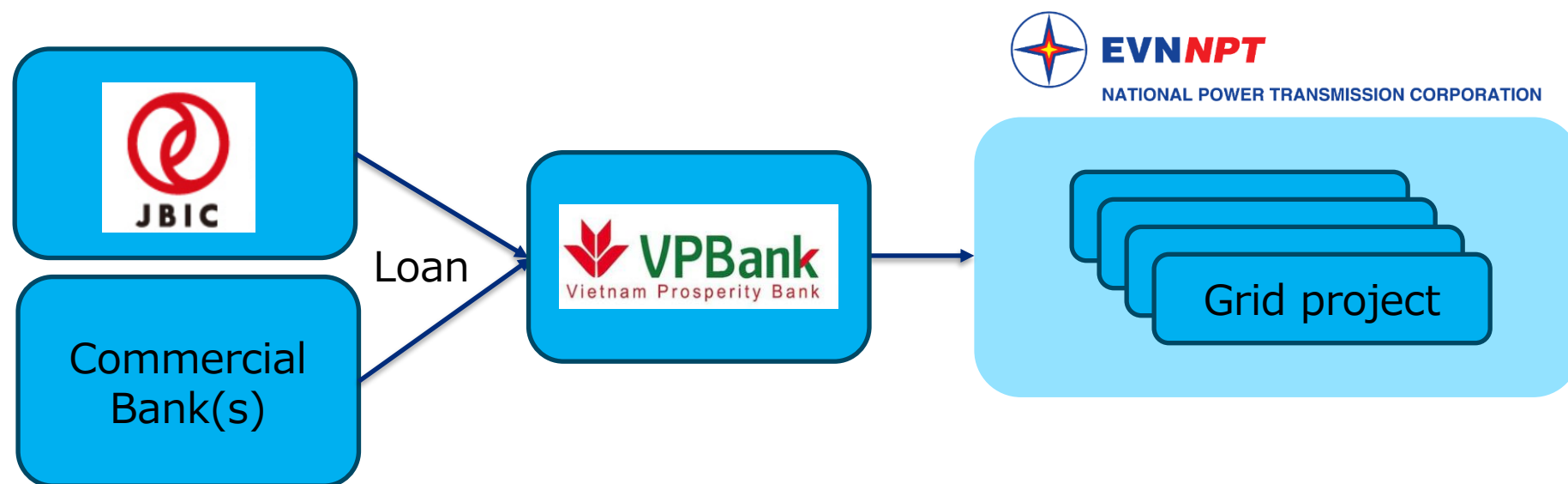
## Joint Research with VNUA



## Map



- **Outline:** JBIC signed the General Agreement with Vietnam Prosperity Joint Stock Commercial Bank (VPBank), a Vietnamese commercial bank, to provide a credit line for supporting the development of the power transmission network being carried out by Vietnam National Grid Corporation (NPT), a subsidiary of Vietnam Electricity Company (EVN).
- **Purpose and objective:** In Vietnam, the areas with high electricity demand are located far from suitable areas for renewable energy generation. Strengthening the power transmission infrastructure is urgent for promoting renewable energy. JBIC aims to expand the use of renewable energy in Vietnam through this project.



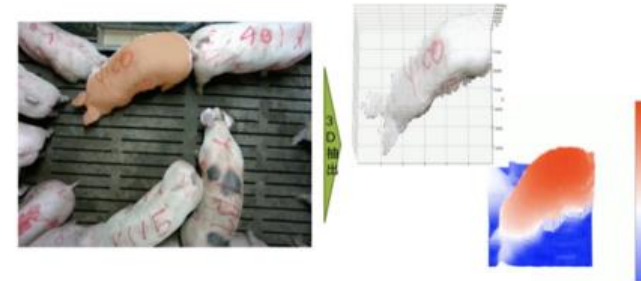
# Reducing GHG originating from livestock sector through optimized feeding by introducing livestock information management system

**Cooperation outline** : Demonstration of livestock information management system in Vietnam, having obtained good outcome with respect to livestock productivity in a pig farm in Vietnam.

**Purpose of the cooperation** : To achieve sustainability in pig productions by optimizing production and reducing environmental burdens through livestock information management system.

**Other points** : Exploring further verification of the effects of the livestock information system on GHG emissions.

1. Taking photos with AI pig cameras
2. Obtaining/analyzing data on pigs



3. Estimating weights with AI



4. Visible on Porker



# Memorandum of Cooperation between the Forestry Agency, Japan and the Department of Forestry, Viet Nam in the field of forests and forestry (MOC)

- **MOC outline** : To promote bilateral cooperation aimed at realizing an affluent society that contributes to carbon neutrality through the promotion of sustainable forest management and the effective use of forest resources.
- **Purpose of the MOC** : Japan and Vietnam have been continuously conducting exchanges in the field of forests and forestry, and promote further cooperation between the two countries in the areas of cooperation stipulated in the MOC, such as sustainable forest management and climate change mitigation and adaptation measures.
- **Other points** : The MOC was signed in May 2024. Meetings will be conducted in the respective countries alternately to exchange views and enhance cooperation.

## <Signing ceremony (May 2024) >



## <Area of cooperation in the MOC>

- Sustainable forest management
- Mitigation and adaptation against climate change
- Effective utilization and management of forest resources; multiple utilization of forest such as recreation and education
- Enhancement of forest conservation, biodiversity and forest landscape restoration
- Forest management for disaster prevention
- Research and development and new technologies in forestry sector
- Human resource development
- Legally harvested timber and associated trade



- **Cooperation outline** : Develop GHG reduction technologies by combining Vietnamese rice varieties and water management.
- **Purpose of the cooperation** : Reducing methane emissions in global boiling is an urgent issue, and it is imperative to develop technologies that meet the current situation in Southeast Asia in order to contribute to reducing emissions from rice paddies, one of the main methane emitters.

JIRCAS  
•Crop, Livestock and  
Environment Division



Cuu Long Delta  
Rice Research  
Institute (CLRRRI),  
Vietnam



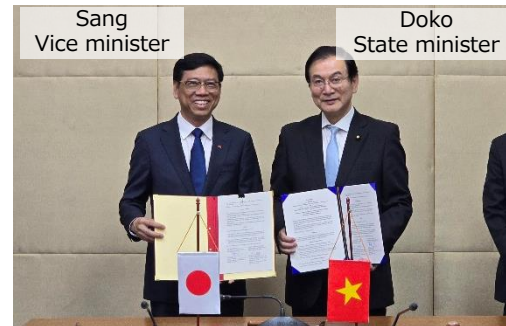
Seed multiplication in a small plot at screening house

# Support for development of the national technical standards for port and harbour facilities

- Cooperation in the development of the national technical standards for port and harbour facilities in Vietnam is underway based on a memorandum of cooperation signed between Japan and Vietnam in 2014, with the aim of creating an environment that supports the overseas expansion of Japanese companies.
- Climate change and decarbonization took into MOC as new cooperation areas when MOC was renewed in September 2024.
- **URL** : [https://www.mlit.go.jp/report/press/port04\\_hh\\_000473.html](https://www.mlit.go.jp/report/press/port04_hh_000473.html)

## ■ Background

- 2014.3 Signed MOC regarding cooperation in the development of the national technical standards for port and harbour facilities in Vietnam  
\*Later renewed in 2017 and 2020
- 2023.8 JICA technical cooperation project has started (until July 2027) to support the formulation of standards and the dissemination of standards and related guidelines within Vietnam.
- 2024.9 Renewed MOC  
\*Cooperation period: until March 2027  
\*Added "updating the Vietnamese port and harbour technical standards in consideration on new technical issues, such as climate change and decarbonization" as a cooperation areas.

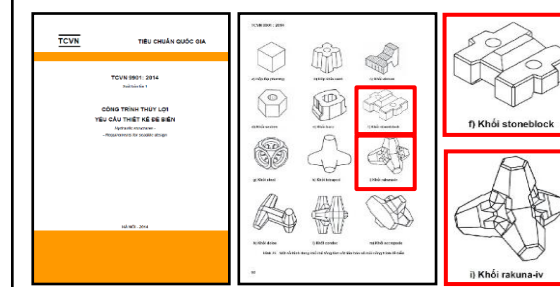


MOC renewal (September 2024)



Joint study with Vietnamese experts

Orders received (e.g. wave dissipating blocks)  
Increased orders received due to inclusion in technical standards



Place: Port of Chan May (2018-2020)  
Block size: 16t, 32t  
Total quantity: 4,600 blocks



Source: NIKKEN KOGAKU CO.,LTD.

# Taisei Rotec Corporation prepares for full-scale field testing to obtain Vietnamese national standards for highly recycled asphalt mixtures

- **Overview of the MOU** : Taisei Rotec Corporation and Institute of Transport Science and Technology (ITST), a research institute under the Ministry of Transport of Vietnam, are working to prepare and study for full-scale field testing as early as possible in order to establish basic and national standards for asphalt mixtures with a recycled content rate of 50% or more.
- **Significance and aims of this collaboration** : The use of recycled asphalt not only reduces CO2 emissions associated with material procurement (transportation of crushed stone, etc.), but also promotes healthy resource circulation and leads to sustainable pavement maintenance. Therefore, we aim to establish relevant national standards in Vietnam and create a market for recycled materials.

## Recycling Asphalt Pavement



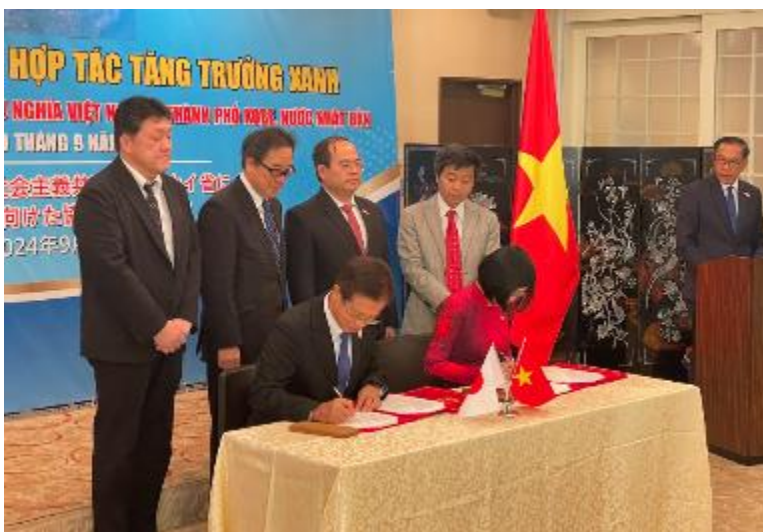
MOU signing ceremony with ITST on Oct.8<sup>th</sup> in 2024





- **Outline of MoU** : In September 2024, Kobe City and Dong Nai Province signed a MoU on cooperation for achieving Green Growth in Dong Nai Province. The fields of cooperation are “city-to-city cooperation on green growth in industrial parks and urban areas”, “support for private companies in the formation of green and smart industrial parks”, and “information exchange, holding of seminars and business matching, etc.”.
- **Purpose or objectives of MOU** : The two sides will exchange information on the establishment of systems and the formulation of plans to realize the “Green Growth Strategy for Decarbonization” of Dong Nai Province. In addition, they will support the formation of private-sector projects in existing and new industrial parks in Dong Nai Province, with a view to utilizing the JCM (Joint Crediting Mechanism), focusing on areas of “promotion of renewable energy and energy conservation”, “improving the efficiency of sewage treatment”, and “improving the efficiency of waste treatment and power generation”.

< The signing ceremony at the Embassy of Socialist Republic of Vietnam in Japan >



<Location of Dong Nai Province >





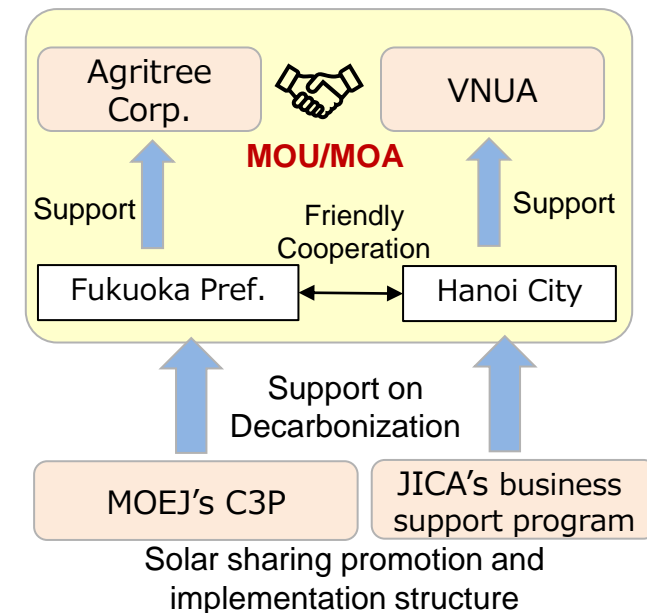
- **Cooperation outline:** This agreement between Agritree Corp. and Vietnam National University of Agriculture (VNUA) involves the mutual provision of technology, human resources, locations, and knowledge necessary for the pilot project of solar sharing.
- **Purpose or objectives of MOU:** To expand the scope of cooperation, such as developing JCM MRV and methodologies and promotion solar sharing through seminars and site visits, it aims to increase farmers' incomes, conserve the environment, and establish a business model for decarbonizing the cities.
- **Other points:** Based on the MOU/MOA, a pilot project will be started in the land of VNUA.



Candidate of pilot project area in VNUA



Group photo of VNUA and Agritree



# MOU between Khanh Hoa Province and Sumitomo Corporation for promotion of foreign investment in Khanh Hoa Province including LNG to Power Project

- **Cooperation outline** : People's Committee of Khanh Hoa Provincial and Sumitomo Corporation agree to establish a task force team to promote foreign investment activities in Khanh Hoa Province.
- **Purpose or objectives of MOU** : The parties will collaborate to expand investment activities in Khanh Hoa Province especially from Japan.  
The investment activities include energy sector (Van Phong 2 LNG to Power Project) to accelerate energy transition in Vietnam



Khanh Hoa Province

## Base-Load by LNG to Power



- **LNG to Power is transitional energy for achievement of carbon neutral in Vietnam.**  
→ When the technology commercialized, hydrogen co-firing will be considered in accordance with the Power Development Plan in Vietnam.
- **Van Phong 2 as a LNG to Power project will contribute energy security/transition of Khanh Hoa Province, which will attract more FDI.**

# MOU for Vietnam-Singapore Link



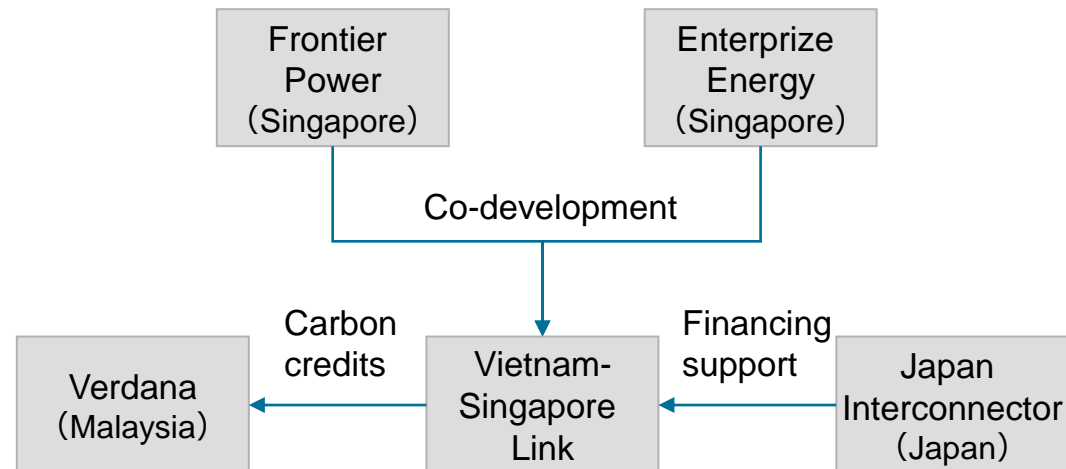
**Cooperation outline:** Co-development of a 2 GW HVDC subsea power cable to export power from Thang Long offshore wind farm from Vietnam across 1,150km to Singapore. MOU is executed to advance the project towards construction by conducting technical, commercial and financial feasibility studies.

**Purpose or objectives of MOU:** This project is expected to contribute regional effort for carbon zero emission in ASEAN, through developing HVDC between Vietnam where large offshore wind development is expected and Singapore where has huge demand for renewable energy.

**URL:** <https://www.japaninterconnector.com/news>



## <Project Scheme>



# MOC among METI, ADB, and ERIA on Technology and Transition Finance for Practical Energy Transition in Asia

- **Outline** : The MOC is to confirm the future collaboration among METI, ADB, and ERIA on technology and transition finance for whole-of-economy transitions in Asia including the energy sector.
- **Prospects** : With a focus on technology and transition finance as key enablers, the three parties will deepen mutual understanding, identify and promote tangible future cooperations to accelerate the whole-of-economy transitions. The three parties will hold the regular working groups and promote the cooperation.

