Ministry of the Environment

JCM THE JOINT CREDITING MECHANISM

Article 6 decision and carbon market mechanism including the Joint Crediting Mechanism (JCM)

India-Japan Environmental Week

12th January 2023

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Ministry of the Environment, Japan

Potential of Article 6

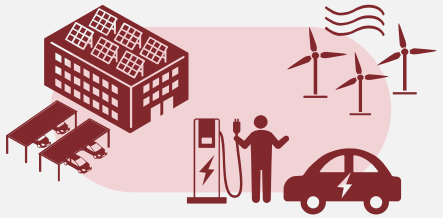
Gaps in emissions

If fully implementing countries' conditional NDCs, Global GHG emissions can be reduced by 10 per cent compared to BAU, but in order to achieve 2.0°C and 1.5°C, **30 and 45 per cent** of reduction is respectively needed ※1.

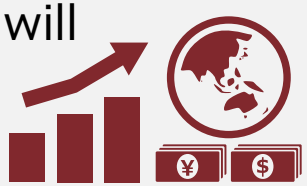
Expected impacts of the Article 6 implementation

Experts have estimated that implementing Article 6 could reduce additional **4 – 12 billion tCO2**※2 emission per year by 2030.

This corresponds to **10% - 40%** of global CO2 emissions in 2018.



Implementing Article 6 can stimulate global carbon market as well as private investment, which simultaneously contribute to global emission reduction and countries' economic growth.
Size of carbon markets will reach US$**300-400 billion**※3 in 2030.



※1 • UNEP. 2022. Emissions Gap Report 2022.
※2 • J. Edmonds et al. 2021. How much could article 6 enhance nationally determined contribution ambition toward Paris Agreement goals through economic efficiency? (P.18), Climate Change Economics
• UNEP and UNEP DTU. 2021. Emissions Gap Report 2021. (P.59)
• TSVCM. 2021. TASKFORCE ON SCALING VOLUNTARY CARBON MARKETS Final Report (P.13)
※3 • UNEP and UNEP DTU. 2021. Emissions Gap Report 2021 (P.60)
• IETA (2021) The Carbon Markets Role of Article 6 Compatible Carbon Markets in Reaching Net-Zero (P.13)

Article 6 Outcomes from COP27

Guidance on Cooperative Approaches (6.2)

Adopted:

1. Reporting
   - ✓ Initial Report (outline)
   - ✓ Annual Information (Agreed Electric Format)
   - ✓ Regular Information (outline)
2. Recording and tracking
   - ✓ Guidance to registries
   - ✓ Guidance to international Registry
   - ✓ Guidance to CARP
   - ✓ Guidance to A6 database
3. Review
   - ✓ Guidelines for A6 TER (technical expert Review)
   - ✓ A6 TER Report (outline)
   - ✓ Training programme

Work Programme (SBSTA) :

- ☐ Workshops/submissions on reporting
- ☐ Additional functionalities on registries/international registry
- ☐ Capacity building

Mechanism (6.4)

Adopted:

1. Rules of procedure of the Supervisory Body
2. Operation of the mechanism registry
3. Processes for share of proceeds (SOP) (admin/adaptation)
4. Processes overall mitigation in global emissions (OMGE)
5. Processes for transition of CDM projects to 6.4 Mechanism
6. Processes for transfer/use of CERs
7. Reporting by host Parties

Work Programme (SBSTSA/SB)

- ☐ Avoidance, connection of mechanism registry, authorization statement
- ☐ Recommendation on methodologies including removals
- ☐ procedures on transfer of CDM projects and ERs, interoperability of registries etc.
- ☐ Capacity building

Non-Market Approaches (6.8)

Adopted:

1. Schedule for implementing the work programme activities
2. UNFCCC web-based platform
3. Additional focus areas
4. Enhanced networking and collaboration
5. Cross-cutting matters

Paris Agreement Article 6 Implementation Partnership

Towards High Integrity Carbon Markets

Overview

■ Promote international collaboration for capacity building related to Article 6 of the Paris Agreement, including by sharing good practices and supporting the implementation of Article 6.

Partnership Website :
https://A6partnership.org

Participants

47 countries・25 international organizations (As of January 5)

Countries	Organizations
Andorra, Armenia, Australia, Bangladesh, Belize, Bhutan, Brazil, Burundi, Cambodia, Canada, Chile, Costa Rica, Côte d'Ivoire, Dominican Republic, Estonia, Ethiopia, Fiji, Finland, France, Germany, Ghana, Greece, India, Italy, Kenya, Maldives, Mexico, Moldova, Mongolia, Morocco, Namibia, Nepal, New Zealand, Palau, Philippines, Singapore, Sudan, Sweden, Switzerland, Thailand, Timor Leste, Uganda, UAE, UK, US, Zambia, Zimbabwe	ADB, AfDB, Climate Focus, Eastern African Alliance, EBRD, ERCST, GGGI, Gold Standard, ICAT, IETA, IGES, Perspectives, UNDP, UNEP, UNFCCC, UNIDO, UNU-IAS, WB, West African Alliance, WRI, etc.

Launch event

■ **Date** November 16, 2022

■ **Venue** COP27 Japan Pavilion

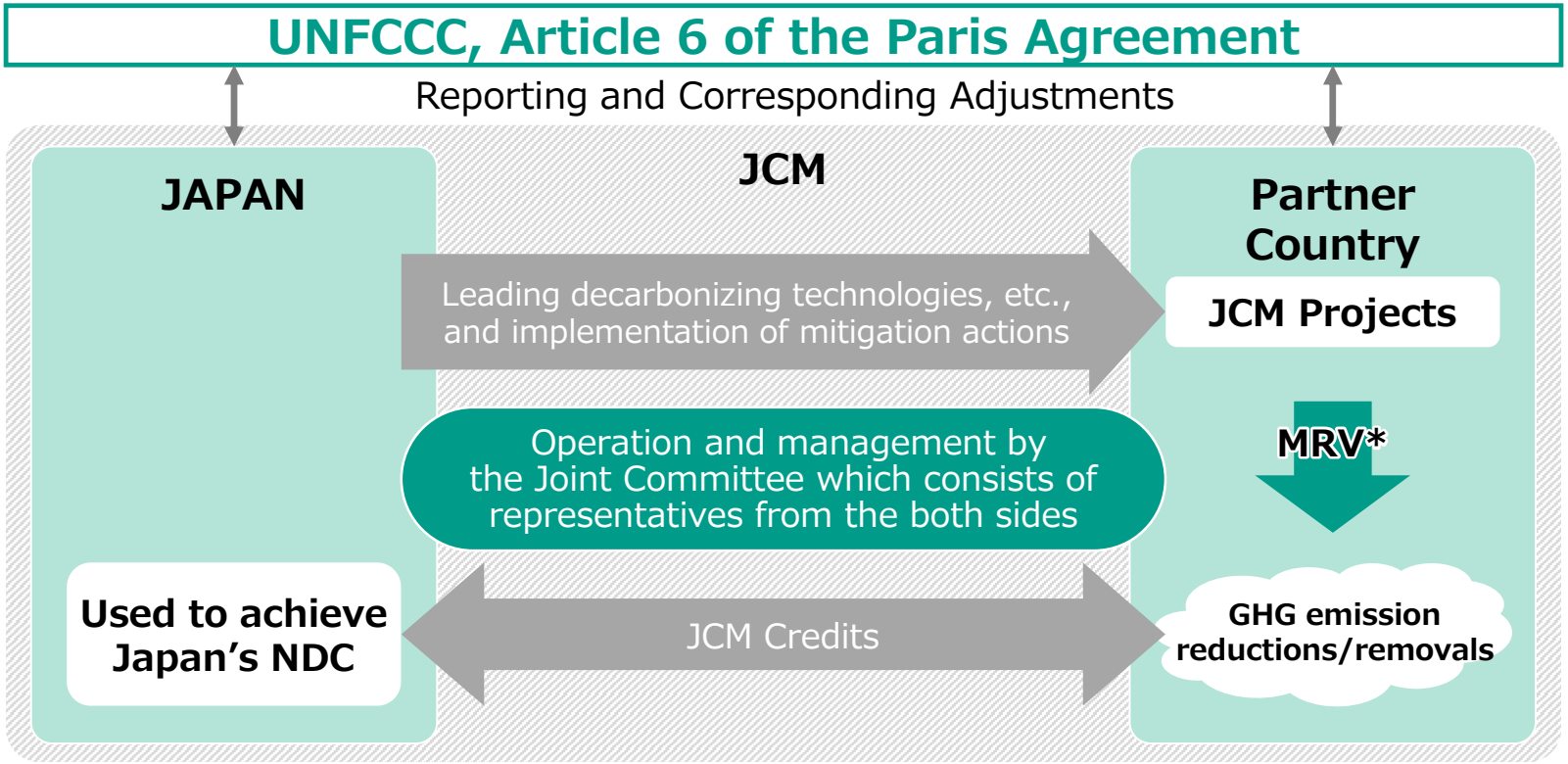
■ **Main participants (Ministerial level)**
Japan, US, Germany, Italy, NZ, Singapore, Sweden, Estonia, UNFCCC secretariat, World Bank, IETA

Signature for collaboration

Letter of Intent signed on November 16, 2022, between Mr. Nishimura, Minister of Environment, and Mr. Stiell, Executive Secretary of the UNFCCC, on collaboration under this partnership.

Basic Concept of the JCM

- Facilitate diffusion of leading decarbonizing technologies and infrastructure, etc., through investment by Japanese entities, thereby contributing to GHG emission reductions or removals and sustainable development in partner countries.
- Contribute to the achievement of both countries' NDCs while ensuring the avoidance of double counting through corresponding adjustments.
- Implement the JCM consistent with the guidance on cooperative approaches, referred to in Article 6, paragraph 2 of the Paris Agreement.



*measurement, reporting and verification

JCM Partner Countries (25 countries)

Mongolia
Jan. 8, 2013 (Ulaanbaatar)

Bangladesh
Mar. 19, 2013 (Dhaka)

Ethiopia
May. 27, 2013 (Addis Ababa)

Kenya
Jun. 12, 2013 (Nairobi)

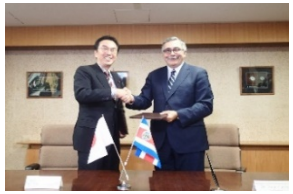
Maldives
Jun. 29, 2013 (Okinawa)

Viet Nam
Jul. 2, 2013 (Hanoi)

*The photo at the time of extension in Oct 2021.

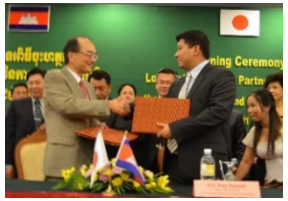
Lao PDR
Aug. 7, 2013 (Vientiane)

Indonesia
Aug. 26, 2013 (Jakarta)



Costa Rica
Dec. 9, 2013 (Tokyo)

Palau
Jan. 13, 2014 (Ngerulmud)



Cambodia
Apr. 11, 2014 (Phnom Penh)

Mexico
Jul. 25, 2014 (Mexico City)

Saudi Arabia
May. 13, 2015

Chile
May. 26, 2015 (Santiago)

Myanmar
Sep. 16, 2015 (Nay Pyi Taw)

Thailand
Nov. 19, 2015 (Tokyo)

Philippines
Jan. 12, 2017 (Manila)

Senegal
Aug. 25, 2022 (Dakar)

Tunisia
Aug. 26, 2022 (Tunis)

Azerbaijan
Sept. 5, 2022 (Baku)

Moldova
Sept. 6, 2022 (Chisinau)

Georgia
Sept. 13, 2022 (Tbilisi)

Sri Lanka
Oct. 10, 2022 (Colombo)

Uzbekistan
Oct. 25, 2022 (Tashkent)

Papua New Guinea
Nov. 18, 2022 (Sharm-el-Sheikh)

Projects supported by the JCM financing programmes

Renewable Energy

Solar power, FARMLAND Co., Ltd., Chile

Floating Solar PV,TSB Co., Ltd.,Thailand

Hydro Power Plant, Toyo Energy Farm Co., Ltd., Indonesia

Biomass Co-Generation System, Fuji-Foods Coporation, Thailand

Binary Power Generation Project at Geothermal Power Plant, MHI, Ltd., Philippines

Energy efficiency [Consumer sector]

High-efficiency refrigerator, Mayekawa MFG, Indonesia

Energy saving at convenience stores, Panasonic, Indonesia

High-efficiency air-conditioning system, Hitachi, Daikin, Vietnam

Energy efficiency [Industrial sector]

Optimization in petroleum refining plant, Yokogawa Electric Corp. Indonesia

Energy-saving of mobile communications base transceiver stations, KDDI Corp. Indonesia

Energy efficiency [Urban sector]

LED street lighting system with wireless network control, MinebeaMitsumi, Cambodia

Amorphous transformers in power distribution, Hitachi Materials, Vietnam

Waste

Power Generation with Methane Gas Recovery System, NTTDATA, Mexico

Waste to Energy Plant, JFE engineering, Myanmar

Transport

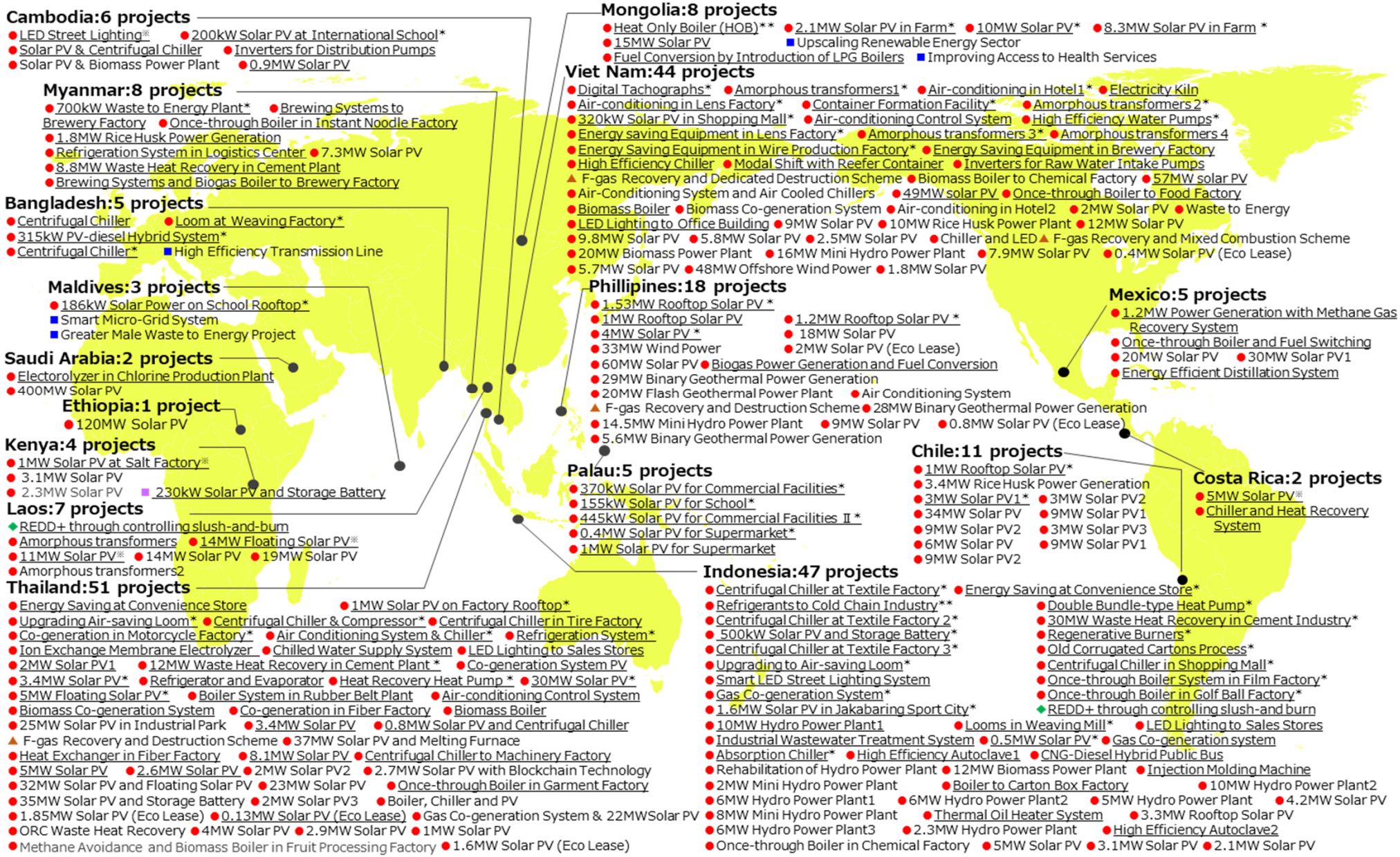
CNG-Diesel Hybrid Public Bus, Hokusan Co., Ltd., Indonesia

JCM Financing Programme by MOEJ (FY2013～2022) as of December, 2022

Total 227projects (25 partner countries)

(●Model Project: 215 projects(including Eco Lease: 5projects), ■ADB: 5 projects, ■UNIDO: 1 project, ◆ REDD+: 2 projects, ▲F-gas: 4 projects) Other 1 project in Malaysia

133underlined projects have been started operation. **68 projects with *** have been registered as JCM projects.



Cambodia:6 projects
- LED Street Lighting※
- 200kW Solar PV at International School*
- Solar PV & Centrifugal Chiller
- Inverters for Distribution Pumps
- Solar PV & Biomass Power Plant
- 0.9MW Solar PV

Myanmar:8 projects
- 700kW Waste to Energy Plant*
- Brewing Systems to Brewery Factory
- Once-through Boiler in Instant Noodle Factory
- 1.8MW Rice Husk Power Generation
- Refrigeration System in Logistics Center
- 7.3MW Solar PV
- 8.8MW Waste Heat Recovery in Cement Plant
- Brewing Systems and Biogas Boiler to Brewery Factory

Bangladesh:5 projects
- Centrifugal Chiller
- Loom at Weaving Factory*
- 315kW PV-diesel Hybrid System*
- Centrifugal Chiller*
- High Efficiency Transmission Line

Maldives:3 projects
- 186kW Solar Power on School Rooftop*
- Smart Micro-Grid System
- Greater Male Waste to Energy Project

Saudi Arabia:2 projects
- Electorolyzer in Chlorine Production Plant
- 400MW Solar PV

Ethiopia:1 project
- 120MW Solar PV

Kenya:4 projects
- 1MW Solar PV at Salt Factory※
- 3.1MW Solar PV
- 2.3MW Solar PV
- 230kW Solar PV and Storage Battery

Laos:7 projects
- ◆REDD+ through controlling slush-and-burn
- Amorphous transformers
- 14MW Floating Solar PV※
- 11MW Solar PV※
- 14MW Solar PV
- 19MW Solar PV
- Amorphous transformers2

Thailand:51 projects
- Energy Saving at Convenience Store
- 1MW Solar PV on Factory Rooftop*
- Upgrading Air-saving Loom*
- Centrifugal Chiller & Compressor*
- Centrifugal Chiller in Tire Factory
- Co-generation in Motorcycle Factory*
- Air Conditioning System & Chiller*
- Refrigeration System*
- Ion Exchange Membrane Electrolyzer
- Chilled Water Supply System
- LED Lighting to Sales Stores
- 2MW Solar PV1
- 12MW Waste Heat Recovery in Cement Plant *
- Co-generation System PV
- 3.4MW Solar PV*
- Refrigerator and Evaporator
- Heat Recovery Heat Pump *
- 30MW Solar PV*
- 5MW Floating Solar PV*
- Boiler System in Rubber Belt Plant
- Air-conditioning Control System
- Biomass Co-generation System
- Co-generation in Fiber Factory
- Biomass Boiler
- 25MW Solar PV in Industrial Park
- 3.4MW Solar PV
- 0.8MW Solar PV and Centrifugal Chiller
- ▲F-gas Recovery and Destruction Scheme
- 37MW Solar PV and Melting Furnace
- Heat Exchanger in Fiber Factory
- 8.1MW Solar PV
- Centrifugal Chiller to Machinery Factory
- 5MW Solar PV
- 2.6MW Solar PV
- 2MW Solar PV2
- 2.7MW Solar PV with Blockchain Technology
- 32MW Solar PV and Floating Solar PV
- 23MW Solar PV
- Once-through Boiler in Garment Factory
- 35MW Solar PV and Storage Battery
- 2MW Solar PV3
- Boiler, Chiller and PV
- 1.85MW Solar PV (Eco Lease)
- 0.13MW Solar PV (Eco Lease)
- Gas Co-generation System & 22MWSolar PV
- ORC Waste Heat Recovery
- 4MW Solar PV
- 2.9MW Solar PV
- 1MW Solar PV
- Methane Avoidance and Biomass Boiler in Fruit Processing Factory
- 1.6MW Solar PV (Eco Lease)

Mongolia:8 projects
- Heat Only Boiler (HOB)**
- 2.1MW Solar PV in Farm*
- 10MW Solar PV*
- 8.3MW Solar PV in Farm *
- 15MW Solar PV
- ■Upscaling Renewable Energy Sector
- Fuel Conversion by Introduction of LPG Boilers
- ■Improving Access to Health Services

Viet Nam:44 projects
- Digital Tachographs*
- Amorphous transformers1*
- Air-conditioning in Hotel1*
- Electricity Kiln
- Air-conditioning in Lens Factory*
- Container Formation Facility*
- Amorphous transformers 2*
- 320kW Solar PV in Shopping Mall*
- Air-conditioning Control System
- High Efficiency Water Pumps*
- Energy saving Equipment in Lens Factory*
- Amorphous transformers 3*
- Amorphous transformers 4
- Energy Saving Equipment in Wire Production Factory*
- Energy Saving Equipment in Brewery Factory
- High Efficiency Chiller
- Modal Shift with Reefer Container
- Inverters for Raw Water Intake Pumps
- ▲F-gas Recovery and Dedicated Destruction Scheme
- Biomass Boiler to Chemical Factory
- 57MW solar PV
- Air-Conditioning System and Air Cooled Chillers
- 49MW solar PV
- Once-through Boiler to Food Factory
- Biomass Boiler
- Biomass Co-generation System
- Air-conditioning in Hotel2
- 2MW Solar PV
- Waste to Energy
- LED Lighting to Office Building
- 9MW Solar PV
- 10MW Rice Husk Power Plant
- 12MW Solar PV
- 9.8MW Solar PV
- 5.8MW Solar PV
- 2.5MW Solar PV
- Chiller and LED
- ▲F-gas Recovery and Mixed Combustion Scheme
- 20MW Biomass Power Plant
- 16MW Mini Hydro Power Plant
- 7.9MW Solar PV
- 0.4MW Solar PV (Eco Lease)
- 5.7MW Solar PV
- 48MW Offshore Wind Power
- 1.8MW Solar PV

Phillipines:18 projects
- 1.53MW Rooftop Solar PV *
- 1MW Rooftop Solar PV
- 1.2MW Rooftop Solar PV *
- 4MW Solar PV *
- 18MW Solar PV
- 33MW Wind Power
- 2MW Solar PV (Eco Lease)
- 60MW Solar PV
- Biogas Power Generation and Fuel Conversion
- 29MW Binary Geothermal Power Generation
- 20MW Flash Geothermal Power Plant
- Air Conditioning System
- ▲F-gas Recovery and Destruction Scheme
- 28MW Binary Geothermal Power Generation
- 14.5MW Mini Hydro Power Plant
- 9MW Solar PV
- 0.8MW Solar PV (Eco Lease)
- 5.6MW Binary Geothermal Power Generation

Palau:5 projects
- 370kW Solar PV for Commercial Facilities*
- 155kW Solar PV for School*
- 445kW Solar PV for Commercial Facilities Ⅱ*
- 0.4MW Solar PV for Supermarket*
- 1MW Solar PV for Supermarket

Indonesia:47 projects
- Centrifugal Chiller at Textile Factory*
- Energy Saving at Convenience Store*
- Refrigerants to Cold Chain Industry**
- Centrifugal Chiller at Textile Factory 2*
- 500kW Solar PV and Storage Battery*
- Centrifugal Chiller at Textile Factory 3*
- Upgrading to Air-saving Loom*
- Smart LED Street Lighting System
- Gas Co-generation System*
- 1.6MW Solar PV in Jakabaring Sport City*
- 10MW Hydro Power Plant1
- Looms in Weaving Mill*
- LED Lighting to Sales Stores
- Industrial Wastewater Treatment System
- 0.5MW Solar PV*
- Gas Co-generation system
- Absorption Chiller*
- High Efficiency Autoclave1
- CNG-Diesel Hybrid Public Bus
- Rehabilitation of Hydro Power Plant
- 12MW Biomass Power Plant
- Injection Molding Machine
- 2MW Mini Hydro Power Plant
- Boiler to Carton Box Factory
- 10MW Hydro Power Plant2
- 6MW Hydro Power Plant1
- 6MW Hydro Power Plant2
- 5MW Hydro Power Plant
- 4.2MW Solar PV
- 8MW Mini Hydro Power Plant
- Thermal Oil Heater System
- 3.3MW Rooftop Solar PV
- 6MW Hydro Power Plant3
- 2.3MW Hydro Power Plant
- High Efficiency Autoclave2
- Double Bundle-type Heat Pump*
- 30MW Waste Heat Recovery in Cement Industry*
- Regenerative Burners*
- Old Corrugated Cartons Process*
- Centrifugal Chiller in Shopping Mall*
- Once-through Boiler System in Film Factory*
- Once-through Boiler in Golf Ball Factory*
- ◆REDD+ through controlling slush-and burn
- Once-through Boiler in Chemical Factory
- 5MW Solar PV
- 3.1MW Solar PV
- 2.1MW Solar PV

Chile:11 projects
- 1MW Rooftop Solar PV*
- 3.4MW Rice Husk Power Generation
- 3MW Solar PV1*
- 3MW Solar PV2
- 34MW Solar PV
- 9MW Solar PV1
- 9MW Solar PV2
- 3MW Solar PV3
- 6MW Solar PV
- 9MW Solar PV1
- 9MW Solar PV2

Mexico:5 projects
- 1.2MW Power Generation with Methane Gas Recovery System
- Once-through Boiler and Fuel Switching
- 20MW Solar PV
- 30MW Solar PV1
- Energy Efficient Distillation System

Costa Rica:2 projects
- 5MW Solar PV※
- Chiller and Heat Recovery System

Technologies Transferred through JCM (FY2013-2022)

- Total of **238** JCM Projects being developed in 25 partner countries (December, 2022)
- 36% for energy efficiency, 54% for renewable energy, 4% for Effective use of Energy, Transport, Waste to energy, F-gas Recovery and Destruction and REDD+ project shares

December,2022

Waste (4) 2%

- Waste to Energy
- Power Generation with Methane Gas

Transport (3) 1%

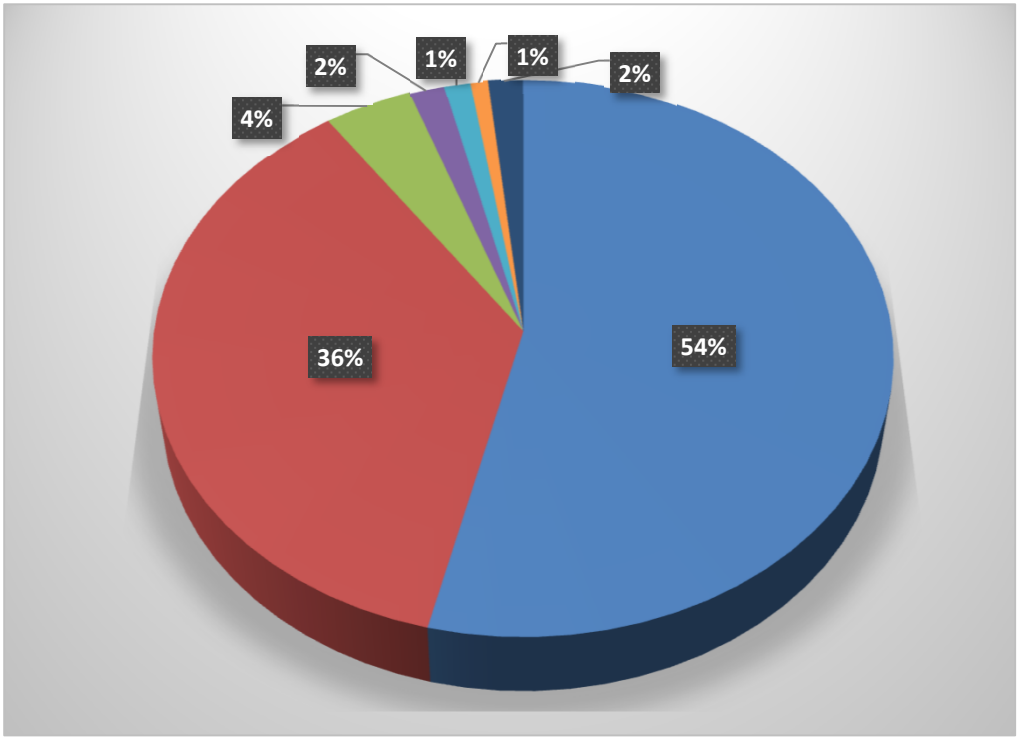
- Digital Tachographs
- Modal Shift
- CNG-Diesel Hybrid

REDD+ (2) 1%

- Controlling slush and burn

Effective Use of Energy (10) 4%

- Waste Heat Recovery
- Gas Co-generation



F-gas (4) 2%

- Recovery & Destruction

Energy efficiency (87) 36%

- Boiler
- Air Conditioning
- Refrigerating/Chiller
- Looms
- Transformer
- LED Lighting

Renewable energy (128) 54%

- Solar(&Storage battery)
- Micro hydro
- Wind
- Biomass
- Geothermal

Thank you for your kind attention

Ministry of the Environment