IMPLEMENTATION OF JOINT CREDITING MECHANISM IN THE PHILIPPINES AND THE WAYS FORWARD

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CLIMATE CHANGE SERVICE

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

SIGNING OF THE MEMORANDUM OF COOPERATION



January 17, 2017 Malacañan Palace, Manila, Philippines





DENR Secretary /USec- Co-Chair
DENR-CLIMATE CHANGE SERVICE
DENR-Environmental Management Bureau
DEPARTMENT OF ENERGY
DEPARTMENT OF TRANSPORT
CLIMATE CHANGE COMMISSION
DEPARTMENT OF FOREIGN AFFAIRS
DEPARTMENT OF SCIENCE & TECHNOLOGY
NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY
CSO/Industry/Academe

Ministry of Environment
Ministry of Foreign Affairs
Ministry of Economy, Trade
and Industry
Forestry Agency
Embassy of Japan

(former EMB-CLIMATE CHANGE DIVISION)

DENR-CCS

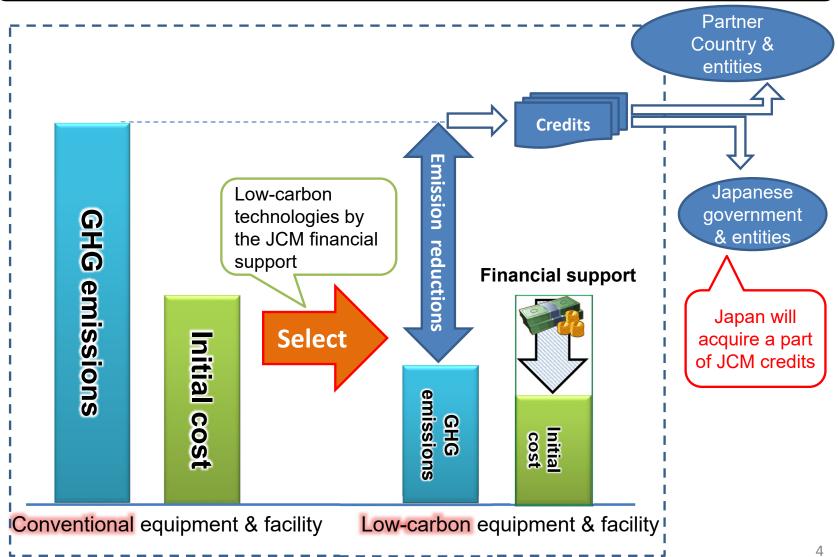
JCM Secretariat



TECHNICAL EVALUATION TEAM
EMB-FMB-DOE-DOT-ACADEME-CSOsPrivate Sector

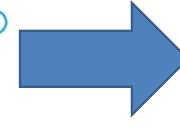


Contributions from Japan



Technology Transfer under the JCM











Carbon Credit to be purchased by Japan and offer technologies and investments



- · Communities,
- private sectors,
- · local government units







Contributions from Japan

	Programme	Type of support
Ministry of the Environment	Finance Programme for JCM Model Projects*	Subsidy
	Finance Programme for F-gas Recovery and Destruction Model Projects*	Subsidy
	Japan Fund for the JCM (JF JCM) - managed by ADB	Grant
	JCM support programme by UNIDO*	Grant for projects, technical cooperation
	Project development/capacity building/MRV support	Technical cooperation
Ministry of Economy, Trade and Industry	JCM Feasibility Study	Technical cooperation
	JCM Demonstration Programme	Government-commissioned project
Forestry Agency	Field studies for JCM REDD+	Government-commissioned project

^{*} These programmes can support projects implemented by government-owned companies but not those implemented by the government itself.

JCM Financing Programme by MOEJ (FY2013~2022) as of July 2023

Total 228projects (27 partner countries)

1.3MW Solar PV (Eco Lease)

ORC Waste Heat Recovery

(Model Project: 216 projects (including Eco Lease: 5projects). ■ ADB: 5 projects, ■ UNIDO: 1 project, AREDD+: 2 projects, AF-gas: 4 projects) Other 1 project in Malaysia 145underlined projects have been started operation. **68 projects with *** have been registered as JCM projects. Mongolia:9 projects Cambodia:5 projects Heat Only Boiler (HOB)** 2.1MW Solar PV in Farm* 10MW Solar PV* 15MW Solar PV1 ■ Upscaling Renewable Energy Sector ● Fuel Conversion by Introduction of LPG Boilers ■ Improving Access to Health Services Viet Nam: 44 projects Myanmar:8 projects Air-conditioning in Lens Factory*
 Container Formation Facility* Amorphous transformers 2 700kW Waste to Energy Plant*
 ● Brewing Systems to 320kW Solar PV in Shopping Mall*
 Air-conditioning Control System High Efficiency Water Pumps Brewery Factory Once-through Boiler in Instant Noodle Factory Energy saving Equipment in Lens Factory* Amorphous transformers 3* Amorphous transformers 4 1.8MW Rice Husk Power Generation Energy Saving Equipment in Wire Production Factory* Refrigeration System in Logistics Center 7.3MW Solar PV Energy Saving Equipment in Brewery Factory Modal Shift with Reefer Container High Efficiency Chiller Inverters for Raw Water Intake Pumps 8.8MW Waste Heat Recovery in Cement Plant ▲ F-gas Recovery and Dedicated Destruction Scheme ● Biomass Boiler to Chemical Factory ● 57MW solar PV Brewing Systems and Biogas Boiler to Brewery Factory Air-Conditioning System and Air Cooled Chillers 49MW solar PV Once-through Boiler to Food Factory Bangladesh: 5 projects 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 Centrifugal Chiller
 Loom at Weaving Factory* 9.8MW Solar PV
 5.8MW Solar PV 2.5MW Solar PV Chiller and LED 315kW PV-diesel Hybrid System* ▲ F-gas Recovery and Mixed Combustion Scheme 20MW Biomass Power Plant • 16MW Mini Hydro Power Plant ◆ Centrifugal Chiller* ■ High Efficiency Transmission Line 0.4MW Solar PV (Eco Lease)
 5.7MW Solar PV 48MW Offshore Wind Power 0.8MW Solar PV Maldives: 3 projects Phillipines: 14 projects Mexico: 5 projects • 186kW Solar Power on School Rooftop* 1.53MW Rooftop Solar PV * ■ 1MW Rooftop Solar PV
 ■ 1.2MW Rooftop Solar PV 1.2MW Power Generation with Methane Gas ●4MW Solar PV * ●18MW Solar PV ● Biogas Power Generation and Fuel Convers Greater Male Waste to Energy Project 29MW Binary Geothermal Power Generation Once-through Boiler and Fuel Switching ● 20MW Flash Geothermal Power Plant ▲ F-gas Recovery and Destruction Scheme Saudi Arabia: 3 projects • 28MW Binary Geothermal Power Generation Energy Efficient Distillation System Electorolyzer in Chlorine Production Plant OMW Solar PV 14.5MW Mini Hydro Power Plant 400MW Solar PV
 100MW Solar P 5.6MW Binary Geothermal Power General 0.8MW Solar PV (Eco Lease) Ethiopia: 1 project • 120MW Solar PV Kenya:5 projects 1MW Solar PV at Salt Factory Chile: 13 projects 2.3MW Solar PV
 230kW Solar PV and Storage Battery 1MW Rooftop Solar PV* Costa Rica: 2 projects Palau:5 projects 3.4MW Rice Husk Power Generation ● 5MW Solar PV® 370kW Solar PV for Commercial Facilities* 3MW Solar PV1* 3MW Solar PV2 Chiller and Heat Recovery 155kW Solar PV for School* 34MW Solar PV 9MW Solar PV1 Laos: 6 projects 445kW Solar PV for Commercial Facilities II * 9MW Solar PV2 3MW Solar PV3 ◆ REDD+ through controlling slush-and-burn 0.4MW Solar PV for Supermarket* 6MW Solar PV 9MW Solar PV1 ● 14MW Floating Solar PV* Amorphous transformers 1MW Solar PV for Supermarket 9MW Solar PV2 47MW Solar PV • 19MW Solar PV 11MW Solar PV^{II} 2.0MW Solar PV Amorphous transformers2 Indonesia:49 projects Centrifugal Chiller at Textile Factory* Energy Saving at Convenience Store* Refrigerants to Cold Chain Industry** Double Bundle-type Heat Pump* Thailand:51 projects Centrifugal Chiller at Textile Factory 2* 30MW Waste Heat Recovery in Cement Industry* Energy Saving at Convenience Store
 1MW Solar PV on Factory Rooftop*
 Upgrading Air-saving Loom* 500kW Solar PV and Storage Battery* Regenerative Burners* Centrifugal Chiller in Tire Factory Centrifugal Chiller & Compressor* Co-generation in Motorcycle Factory* Old Corrugated Cartons Process* Centrifugal Chiller at Textile Factory 3* Ion Exchange Membrane Electrolyzer Air Conditioning System & Chiller* Refrigeration System* Upgrading to Air-saving Loom* Centrifugal Chiller in Shopping Mall* LED Lighting to Sales Stores Chilled Water Supply System 2MW Solar PV1 Once-through Boiler System in Film Factory* Smart LED Street Lighting System 12MW Waste Heat Recovery in Cement Plant *
 Co-generation System PV
 3.4MW Solar PV* Once-through Boiler in Golf Ball Factory* Gas Co-generation System* Refrigerator and Evaporator Heat Recovery Heat Pump * 30MW Solar PV* 1.6MW Solar PV in Jakabaring Sport City ◆ REDD+ through controlling slush-and burn 5MW Floating Solar PV* ■ Boiler System in Rubber Belt Plant
 ● Air-conditioning Control System 10MW Hydro Power Plant1 Looms in Weaving Mill* LED Lighting to Sales Stores Biomass Co-generation System Co-generation in Fiber Factory Biomass Boiler ■ Industrial Wastewater Treatment System
 ● 0.5MW Solar PV* Gas Co-generation system 3.4MW Solar PV 25MW Solar PV in Industrial Park 0.8MW Solar PV and Centrifugal Chiller Absorption Chiller* High Efficiency Autodave1 CNG-Diesel Hybrid Public Bus F-gas Recovery and Destruction Scheme 37MW Solar PV and Melting Furnace Rehabilitation of Hydro Power Plant
 12MW Biomass Power Plant Injection Molding Machine Heat Exchanger in Fiber Factory 8.1MW Solar PV Centrifugal Chiller to Machinery Factory 2MW Mini Hydro Power Plant Boiler to Carton Box Factory 10MW Hydro Power Plant2 SMW Solar PV
 ● 2.6MW Solar PV 2MW Solar PV2 2.7MW Solar PV with Blockchain Technology 6MW Hydro Power Plant1
 6MW Hydro Power Plant2
 5MW Hydro Power Plant
 4.2MW Solar PV 32MW Solar PV and Floating Solar PV
 23MW Solar PV Once-through Boiler in Garment Factory Thermal Oil Heater System 8MW Mini Hydro Power Plant 3.3MW Rooftop Solar PV ● 35MW Solar PV and Storage Battery ● Boiler, Chiller and PV 2MW Solar PV3 ●6MW Hydro Power Plant3 2.3MW Hydro Power Plant High Efficiency Autoclave2

Once-through Boiler in Chemical Factory
 5MW Solar PV

3.5MW Hydro Power Plant

2.1MW Solar PV

3.1MW Solar PV

Energy Saving and Solar PV

0.13MW Solar PV (Eco Lease)
 Gas Co-generation System & 22MWSolar PV

4MW Solar PV

Methane Avoidance and Biomass Boiler in Fruit Processing Factory

2.9MW Solar PV

• 1.6MW Solar PV (Eco Lease)

1MW Solar PV

New types of project in Philippine (JCM Model Project)

Condition

Eligible JCM financial support (% of investment cost)

Philippine's case

New Project (no project using similar technology in Philippine)

Up to 50%

Boiler, Air conditioning, Refrigerating, Chiller, Transformer, etc.

1-3 projects (using similar technology are already selected in Philippine)

Up to 40%

Micro Hydro power (3), Biomass power generation system (1)

More than 3 projects (using similar technology are already selected in Philippine)

Up to 30%

Solar power system (4)

SELECTED JCM MODEL PROJECTS 2017-2019

Project	Area of Investment	Project Participants
Introduction of 1.53MW Rooftop Solar Power System in Auto Parts Factories	Solar Power	 Tokyo Century Corporation Enomoto Philippine Manufacturing, Inc. Aikawa Philippines, Inc.
Introduction of 1MW Rooftop Solar Power System in Vehicle Assembly Factory	Solar Power	 Toyota Motor Corporation Toyota Motor Philippines Corp. (TMP)
Installation of 1.2MW Rooftop Solar Power System to the Cold Storage for Power Supply	Solar Power	Tokyo Century CorporationTransnational Uyeno Solar Corporation(TUSC)
Introduction of 4MW Rooftop Solar Power System in Tire Factory	Solar Power	 Sharp Energy Solutions Corporation Yokohama Tire Philippines Inc. (YTPI)
18MW Solar Power Project in Collaboration with Power-supply Company	Solar Power	Tokyo Century CorporationMspectrum, Inc."
Biogas Power Generation and Fuel Conversion Project in Pineapple Canneries	Bio Power	 ITOCHU Corporation -METPower Venture Partners Holdings, Inc.; Surallah Biogas Ventures Corporation"
33MW Wind Power Project in Caraga Region, Mindanao	Wind Power	 "-Chodai Co., LtdShizen Energy Inc. -Equi-Parco Construction Company -Equi-Parco Holdings Corporation -Caraga Wind Energy Corporation"

SELECTED JCM MODEL PROJECTS 2020-2022

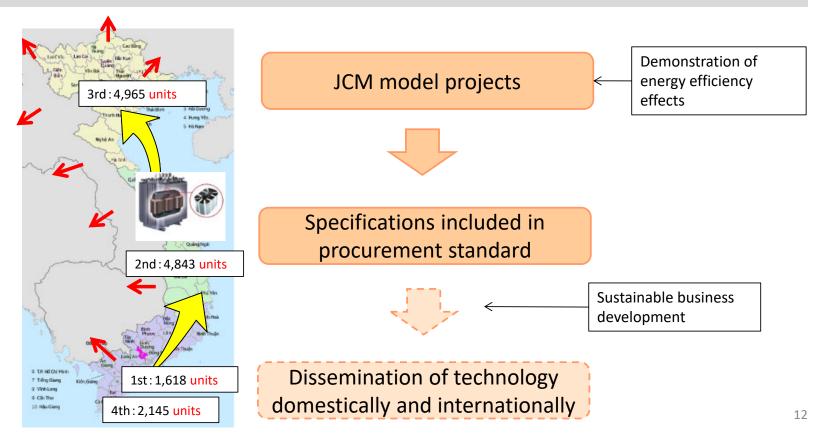
Project	Area of Investment	Project Participants
29MW Binary Power Generation Project at Palayan Geothermal Power Plant	Geothermal Power	Mitsubishi Heavy Industries, Ltd.Bac Man Geothermal Inc."
Tanawon 20MW Flash Geothermal Power Plant Project	Geothermal Power	Mizuho-Toshiba Leasing Company Ltd.
28MW Binary Power Generation Project at Mahanagdong Geothermal Power Plant	Geothermal Power	JGC Corporation
14.5MW Mini Hydro Power Plant Project in Siguil River in Mindanao	Hydro Power	Toyota Tsusho Corporation
Energy Supply Project by 9MW Solar Power System to Ceramic Factory and Cement Plant	Solar Power	 Marubeni Corporation TEAM (PHILIPPINES) ENERGY CORPORATION
Introduction of 0.8MW Solar Power System to Aluminum Products, Packaging Materials and Automotive Parts Factories (JCM Eco Lease Scheme)	Solar Power	Tokyo Century Corporation
5.6MW Geothermal Binary Power Generation Project in Northern Negros	Geothermal Power	GC Corporation

APPROVED METHODOLOGIES

METHODOLOGY NO.	TITLE	DATE APPROVED
PH AMOO3	Installation of biomass power plant	APRIL 9, 2023
PH AMOO2	Installation of Solar PV System	FEBRUARY 2, 2020
PH AMOO1	Electricity generation by installation of run-of-river hydro power generation system(s) in the Philippines	FEBRUARY 2, 2020

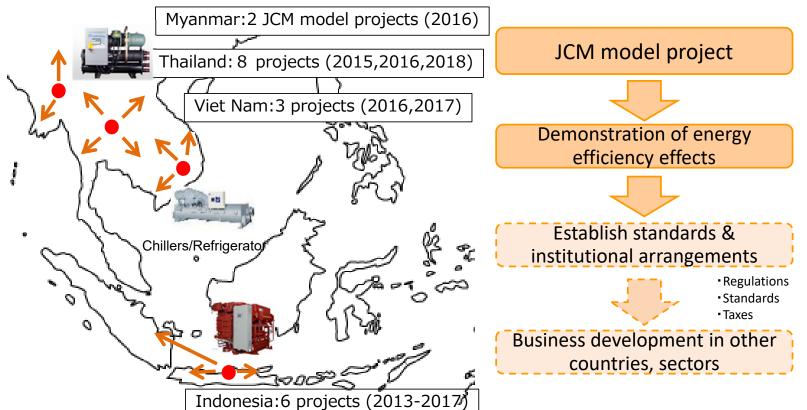
Business Model Case1: Replicating through specific actions

- > Succeeded to introduce amorphous high efficiency transformers all over Viet Nam through the JCM
- ➤ Local energy distribution company included specific rules on the technology in its procurement standard based on its effectiveness
- Further business development is happening in other countries (e.g. Lao PDR)



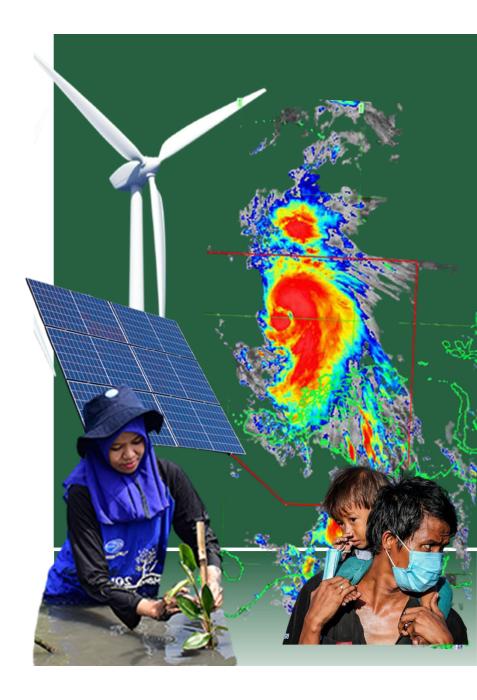
Business Model Case2: Replicating through Standard & Institutional Arrangement

- Succeeded to implement leading low carbon technologies through the JCM
- > Using the project as a showcase, their business was developed in ASEAN countries
- > Further business development is expected through the establishment of energy efficiency standards and relevant institutional arrangements



Expectations from JCM

- Support the country's goal on sustainable development and low carbon development
- Facilitate diffusion of low carbon technologies and transition to climate smart industries
- To develop more projects and establish market mechanisms under the JCM
- Improve the measurement, reporting and verification (MRV) of mitigation measures



Ways Forward

Philippines has a strong experience with developing projects under the JCM, which is largely regarded as a forerunner under Article 6.2 of the Paris Agreement

- Use of market mechanisms, including the JCM, is articulated under Article 6 which prescribes for the use of emissions reductions realized overseas towards national emissions reduction targets.
- The amount of emissions reduction and removal acquired under the JCM will be appropriately counted avoidance or reduction consistent with the guidance on cooperative approaches, referred to in Article 6, paragraph 2 of the Paris Agreement (Decision 2/CMA.3).
- Formulation of the procedures on the authorization and corresponding adjustments
- Establishment "Procedures for Authorization as a Party to the Paris Agreement regarding the Joint Crediting Mechanism (JCM)" and "Procedures for Corresponding Adjustments regarding the Joint Crediting Mechanism."
- There is a need to promote the formation of JCM projects invested and implemented by private companies without any governmental financial supports for the purpose of obtaining JCM credits (private sector JCM), in light of the growing interest in the use of JCM credits on the part of private sector companies in recent years.





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