



Ministry of the Environment
Government of Japan

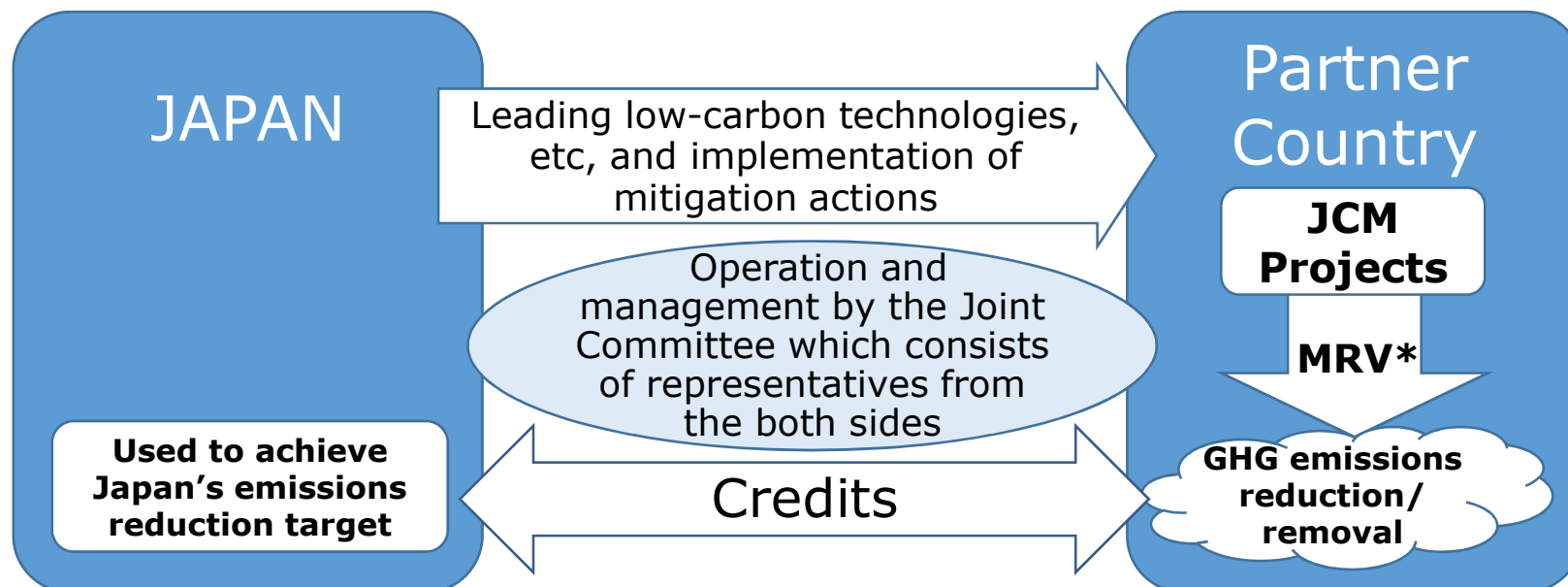
Introduction of the JCM and Business Opportunities for the Private Sector

January 28, 2020

Ministry of the Environment ,Japan



- Facilitating diffusion of leading low-carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions, and contributing to sustainable development of developing countries.
- Appropriately evaluating contributions from Japan to GHG emissions reduction or removal in a quantitative manner and use them to achieve Japan's emissions reduction target.
- Contributing to the ultimate objective of the UNFCCC by facilitating global actions for GHG emissions reduction or removal.



*measurement, reporting and verification

JCM Partner Countries



Ministry of the Environment
Government of Japan

- Japan has held consultations for the JCM with developing countries since 2011 and has established the JCM with Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and the Philippines.



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)



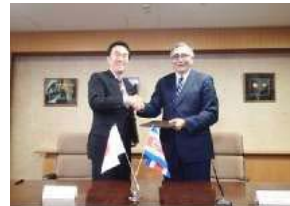
Viet Nam
Jul. 2, 2013
(Hanoi)



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)

The Joint Crediting Mechanism (JCM)



Ministry of the Environment
Government of Japan

- Facilitating diffusion of leading low-carbon technologies through contributions from Japan and evaluating realized GHG emissions reduction or removal in a quantitative manner to use them for achieving Japan's emissions reduction target.
- Japan will address the high initial cost barrier of introducing advanced low-carbon technologies in the Partner countries (17 countries) through the JCM (GoJ implements several supporting schemes)



Waste heat recovery in Cement Industry, JFE engineering, Indonesia



Eco-driving with Digital Tachographs, NITTSU, Vietnam



Energy saving at convenience stores, Panasonic, Indonesia



High-efficiency air-conditioning and process cooling, Ebara refrigeration equipment & systems, Indonesia



High-efficiency Heat only Boilers, Suuri-Keikaku, Mongolia



Upgrading air-saving loom at textile factory, TORAY etc., Indonesia, Thai, Bangladesh



Installing solar PV system, PCKK, Palau Maldives



Amorphous transformers in power distribution, Hitachi Materials, Vietnam



Co-generation system at factory, Toyota, Nippon Steel & Sumikin Engineering, Indonesia, Thai



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



Solar power ,Farmdo Co., Ltd.,Mongolia



Waste to Energy Plant, JFE engineering, Myanmar



High-efficiency refrigerator, Mayekawa MFG, Indonesia

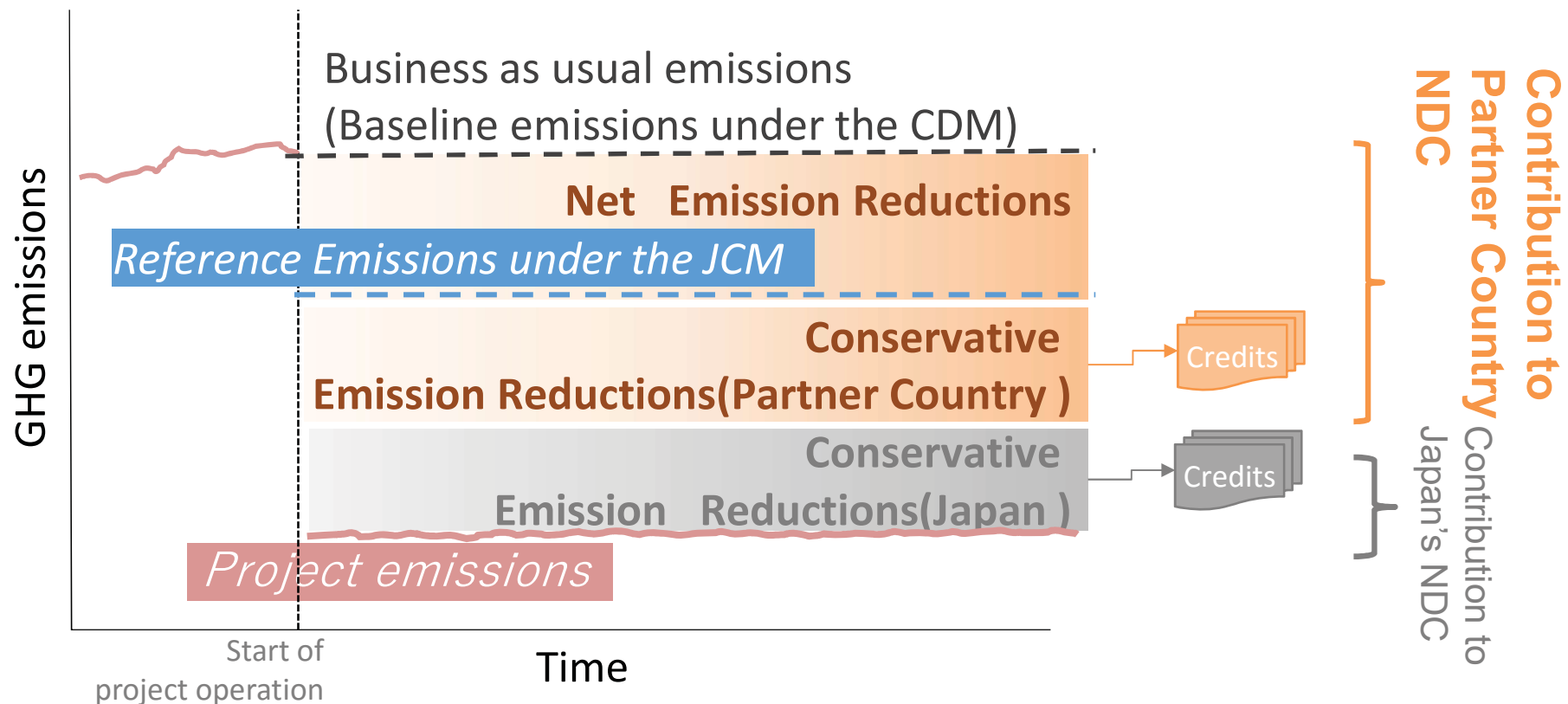


Regenerative Burners in industries, Toyotsu Machinery, Indonesia



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

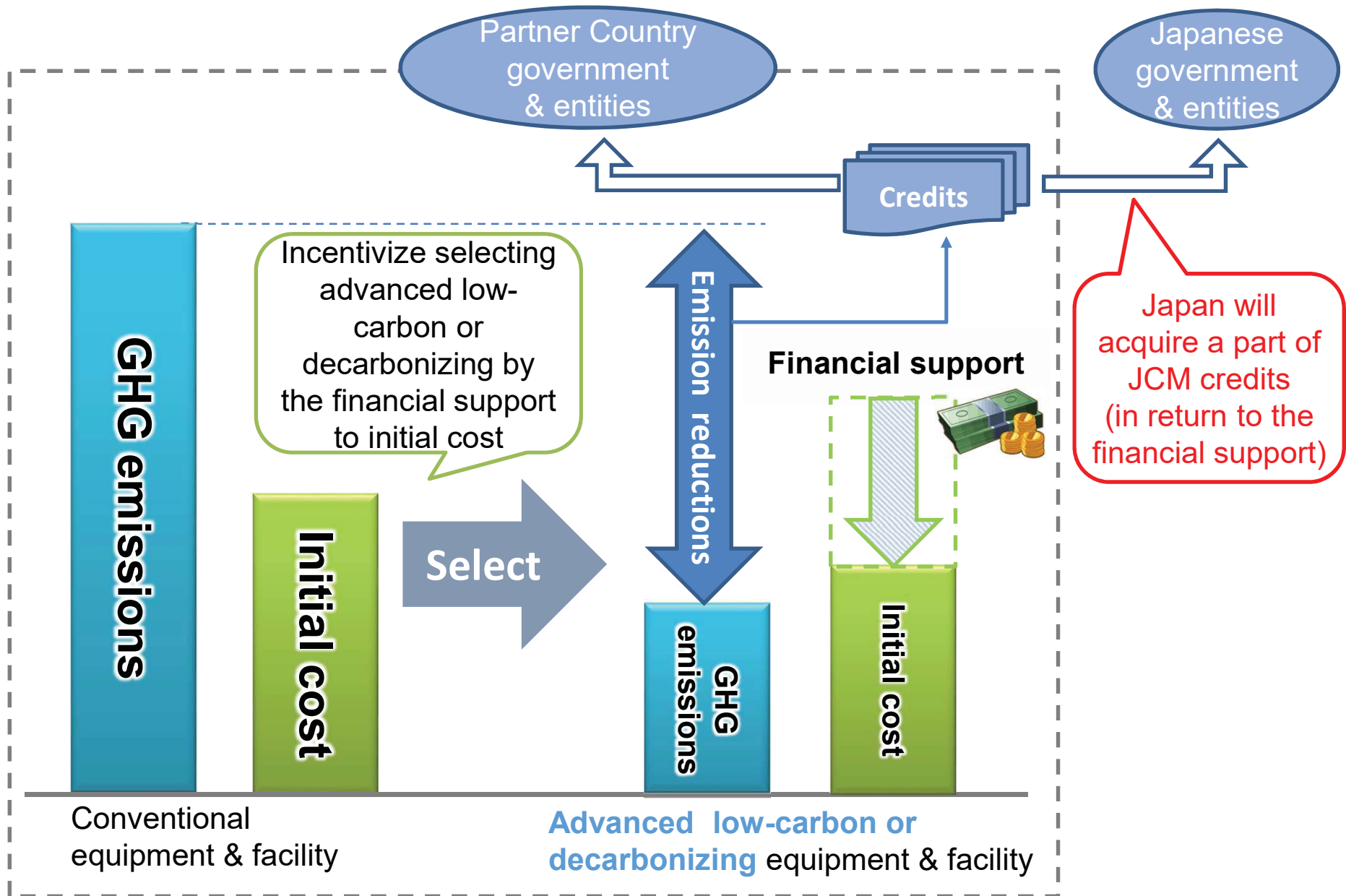
- JCM's conservative emissions reduction calculation (reference emissions below BaU emissions) will ensure a net decrease and/or avoidance of GHG emissions.
- This part of emissions reduction will automatically contribute to the achievement of NDC.



Contributions from Japan



Ministry of the Environment
Government of Japan



Draft budget for projects starting from FY 2020 is **approx. 10 billion JPY (approx. USD 100 million)** in total by FY2022 (1 USD = 100 JPY)

Finance part of an investment cost (**less than half**)

Government of Japan

*Includes collaboration with projects supported by JICA and other governmental-affiliated financial institute.

Conduct MRV and expected to deliver at least half of JCM credits issued

International consortiums (which include Japanese entities)



- Scope of the financing: facilities, equipment, vehicles, etc. which reduce CO₂ from fossil fuel combustion as well as construction cost for installing those facilities, etc.
- Eligible Projects : starting installation after the adoption of the financing and finishing installation within three years.

JCM F-gas Recovery and Destruction Model Project by MOE



Ministry of the Environment
Government of Japan

【Draft budget for FY 2020】
60 million JPY (approx. 0.6 million USD) (1 USD = 100 JPY)

Finance part of the cost in flat-rate (up to 40 million JPY/year)

Government of Japan

Conduct MRV to estimate GHG emission reductions.
At least half or ratio of financial support to project cost (larger ratio will be applied) of JCM credits issued are expected to be delivered to the government of Japan

International consortiums (which include Japanese entities)

Manufacturers of equipment which uses F-gas

Users of equipment which uses F-gas

Entities for recovery and transportation of used F-gas (recycling or scrap entities)

Entities for destruction of used F-gas (may use existing facility for destruction)

Purpose

To recover and destroy F-gas (GHG except for energy-related CO₂, etc) from used equipment instead of releasing to air, and reduce emissions

Scope of Financing

- Establish scheme for recovery and destruction
- Install facilities/equipment for recovery/destruction
- Implementation of recovery, transportation, destruction and monitoring

Project Period

Three years in maximum (E.g. 1st year for scheme, 2nd year for facilities, 3rd year for recovery/destruction)

Eligible Projects

- After the adoption of financing, start implementation of recovery/destruction within three years
- Aim for the registration as JCM project and issuance credits

JCM Financing Programme by MOEJ (FY2013~2019) as of Jan 24, 2019



Ministry of the Environment
Government of Japan

Total 159 projects (● Model Project: 150 projects, ■ ADB: 5 projects, ◆ REDD+: 2 projects, ▲ F-gas: 2 projects) Other 1 project in Malaysia
95 underlined projects have been started operation. **48 projects with *** have been registered as JCM projects.

Cambodia: 7 projects

- LED Street Lighting
- 200kW Solar PV at International School*
- Solar PV & Centrifugal Chiller
- Inverters for Distribution Pumps
- Battambang Wastewater Treatment Project
- Solar PV & Biomass Power Plant
- 1.1MW Solar PV

Myanmar: 7 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
- 8.8MW Waste Heat Recovery in Cement Plant
- Brewing Systems and Biogas Boiler to Brewery Factory

Bangladesh: 6 projects

- Centrifugal Chiller
- Loom at Weaving Factory*
- 315kW PV-diesel Hybrid System*
- 50MW Solar PV Power Plant
- Centrifugal Chiller*
- High Efficiency Transmission Line

Saudi Arabia: 1 project

- Electrolyzer in Chlorine Production Plant

Maldives: 3 projects

- 186kW Solar Power on School Rooftop*
- Smart Micro-Grid System
- 1.1MW Rooftop Solar PV

Ethiopia: 1 projects

- 120MW Solar PV

Kenya: 2 projects

- 1MW Solar PV at Salt Factory
- 38MW Solar PV

Laos: 4 projects

- ◆ REDD+ through controlling slush-and-burn
- Amorphous transformers
- 14MW Floating Solar PV
- 11MW Solar PV

Thailand: 32 projects

- Energy Saving at Convenience Store
- Upgrading Air-saving Loom*
- Centrifugal Chiller in Tire Factory
- Air Conditioning System & Chiller*
- Ion Exchange Membrane Electrolyzer
- LED Lighting to Sales Stores
- Co-generation System PV
- Heat Recovery Heat Pump
- Boiler System in Rubber Belt Plant
- Biomass Co-generation System
- Co-generation in Fiber Factory
- 3.4MW Solar PV
- 0.8MW Solar PV and Centrifugal Chiller
- Heat Exchanger in Fiber Factory
- 1MW Solar PV on Factory Rooftop*
- Centrifugal Chiller & Compressor*
- Co-generation in Motorcycle Factory
- Refrigeration System
- Chilled Water Supply System
- 12MW Waste Heat Recovery in Cement Plant
- Refrigerator and Evaporator
- 30MW Solar PV
- 5MW Floating Solar PV
- Air-conditioning Control System
- Energy Saving Equipment in Port
- Co-generation in Industrial Park
- 25MW Solar PV in Industrial Park
- 37MW Solar PV and Melting Furnace
- 15MW Biomass Power Plant in Sugar Factory
- 2MW Solar
- 3.4MW Solar PV*
- 30MW Solar PV
- Air-conditioning Control System
- Energy Saving Equipment in Port
- 25MW Solar PV in Industrial Park
- 37MW Solar PV and Melting Furnace
- 15MW Biomass Power Plant in Sugar Factory

Mongolia: 10 projects

- Heat Only Boiler (HOB)**
- 2.1MW Solar PV in Farm*
- 10MW Solar PV*
- 8.3MW Solar PV in Farm
- 15MW Solar PV
- 20MW Solar PV
- 21MW Solar PV
- Upscaling Renewable Energy Sector
- Fuel Conversion by Introduction of LPG Boilers
- Improving Access to Health Services

Viet Nam: 23 projects

- Digital Tachographs*
- Amorphous transformers 1*
- Air-conditioning in Hotel*
- 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 1*
- Energy saving Equipment in Lens Factory*
- Amorphous transformers 3*
- Energy Saving Equipment in Wire Production Factory*
- Amorphous transformers 4
- Energy Saving Equipment in Brewery Factory
- High Efficiency Chiller
- Modal Shift with Reefer Container
- Inverters for Raw Water Intake Pumps
- ▲ Collection Scheme and Dedicated System of F-gas
- Biomass Boiler to Chemical Factory
- Air-Conditioning System and Air Cooled Chillers
- 49MW solar PV
- High Efficiency Chiller to Hospital

Mexico: 6 projects

- 2.4MW Power Generation with Methane Gas Recovery System
- Once-through Boiler and Fuel Switching
- 20MW Solar PV
- 30MW Solar PV1
- Energy Efficient Distillation System
- 30MW Solar PV2

Phillipines: 12 projects

- 15MW Hydro Power Plant
- 4MW Hydro Power Plant
- 1.53MW Rooftop Solar PV
- 1MW Rooftop Solar PV
- 1.2MW Rooftop Solar PV
- 4MW Solar PV
- 2.5MW Rice Husk Power Generation
- 0.16MW Micro Hydro Power Plant
- 18MW Solar PV
- 19MW Hydro Power Plant
- 33MW Wind Power
- Biogas Power Generation and Fuel Conversion

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: 34 projects

- Centrifugal Chiller at Textile Factory*
- Refrigerants to Cold Chain Industry**
- Centrifugal Chiller at Textile Factory 2*
- 507kW Solar Power Hybrid System
- 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 Plant
- Industrial Wastewater Treatment System
- 0.5MW Solar PV*
- Energy Saving at Convenience Store*
- 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
- LED Lighting to Sales Stores
- Gas Co-generation system
- Absorption Chiller
- High Efficiency Autoclave
- CNG-Diesel Hybrid Public Bus
- Rehabilitation of Hydro Power Plant
- 12MW Biomass Power Plant
- Injection Molding Machine 3
- 2MW Mini Hydro Power Plant
- Boiler to Carton Box Factory
- 10MW Hydro Power Plant
- 6MW Hydro Power Plant

Costa Rica: 2 projects

- 5MW Solar PV
- Chiller and Heat Recovery System

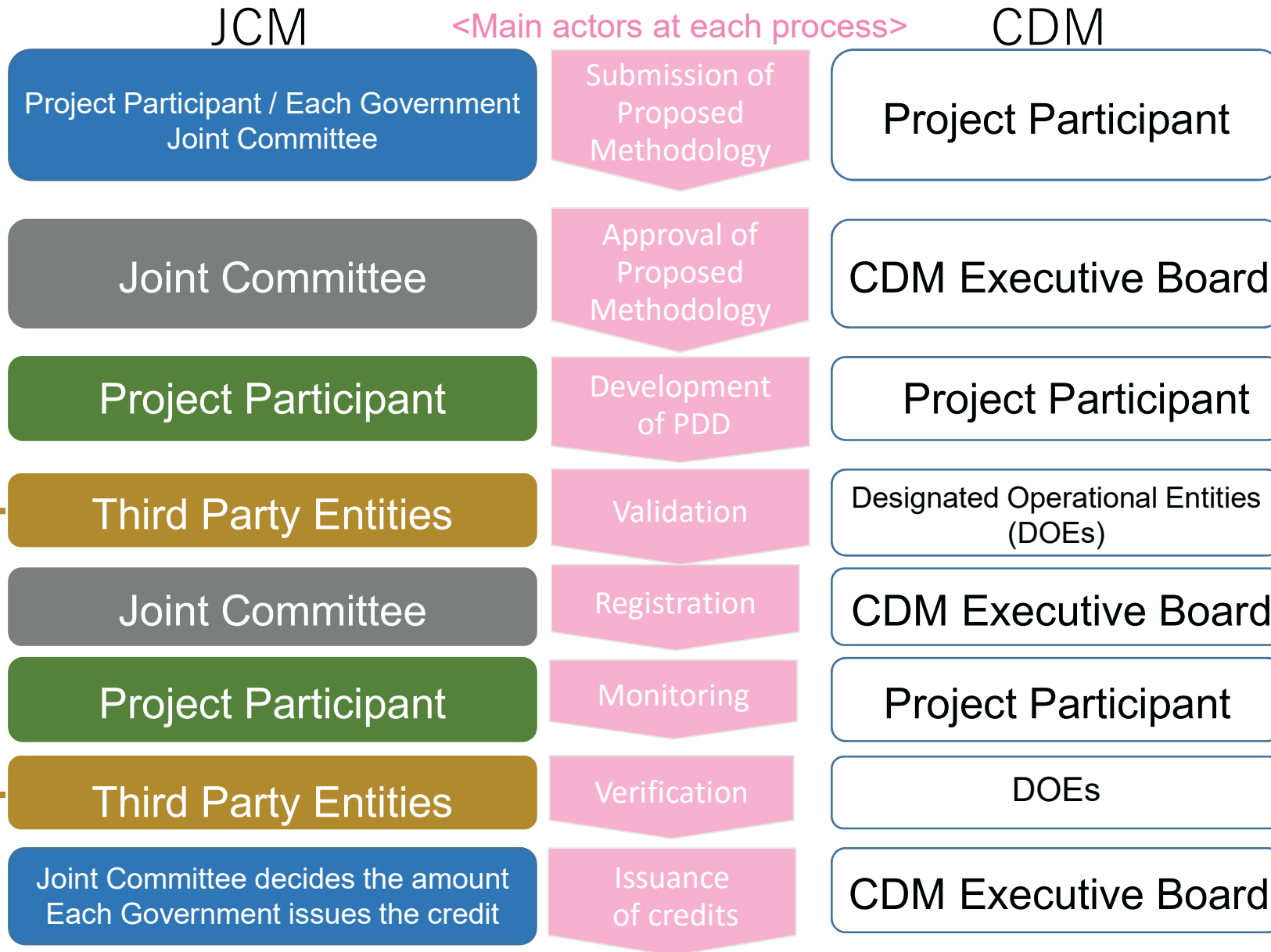
Chile: 4 projects

- 1MW Rooftop Solar PV*
- 1.4MW Solar PV and 2.3MWh Storage Battery
- 3.4MW Rice Husk Power Generation
- 3MW Solar PV

Project Cycle of the JCM and the CDM

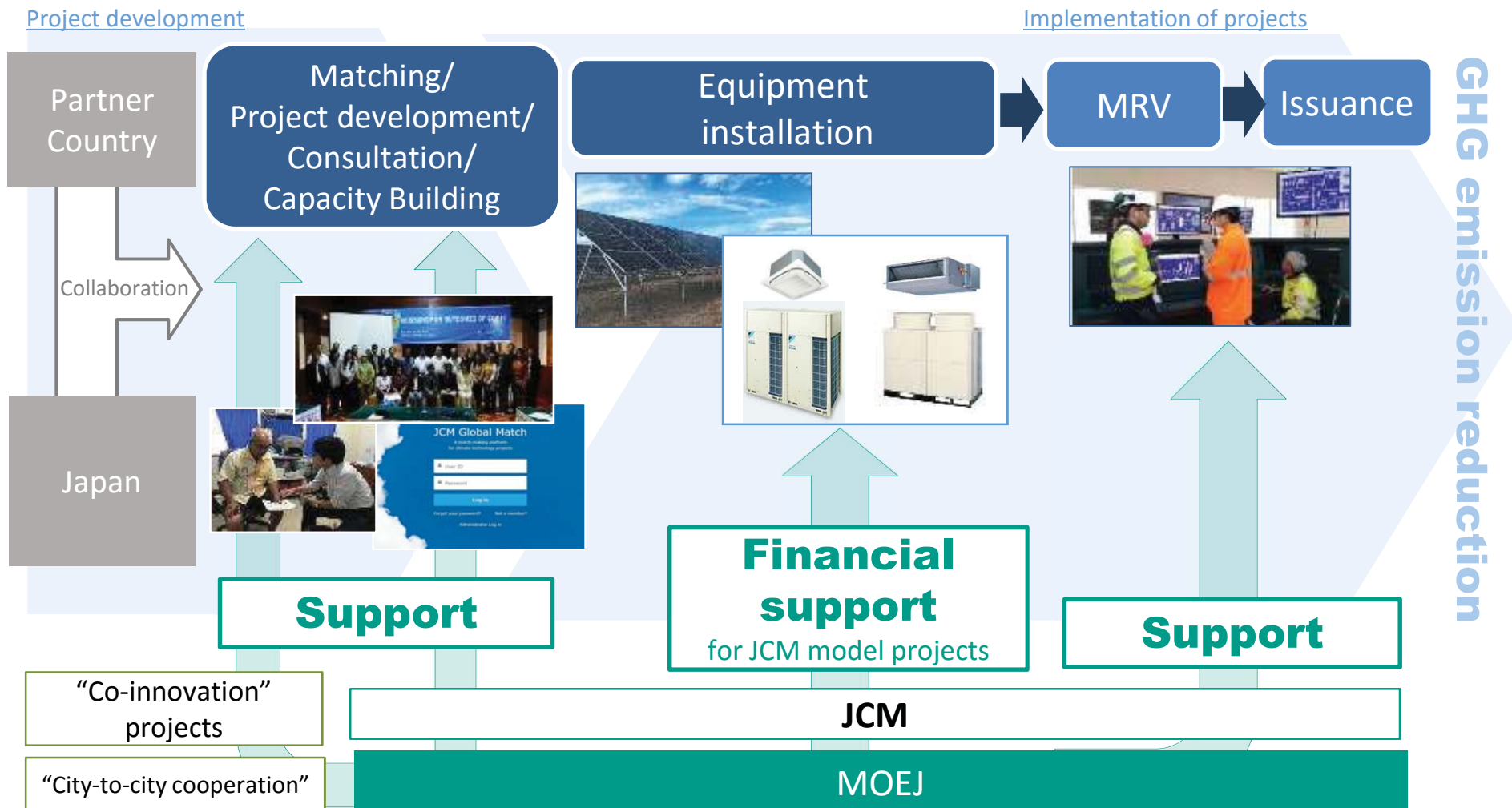


Can be conducted by the same TPE
Can be conducted simultaneously



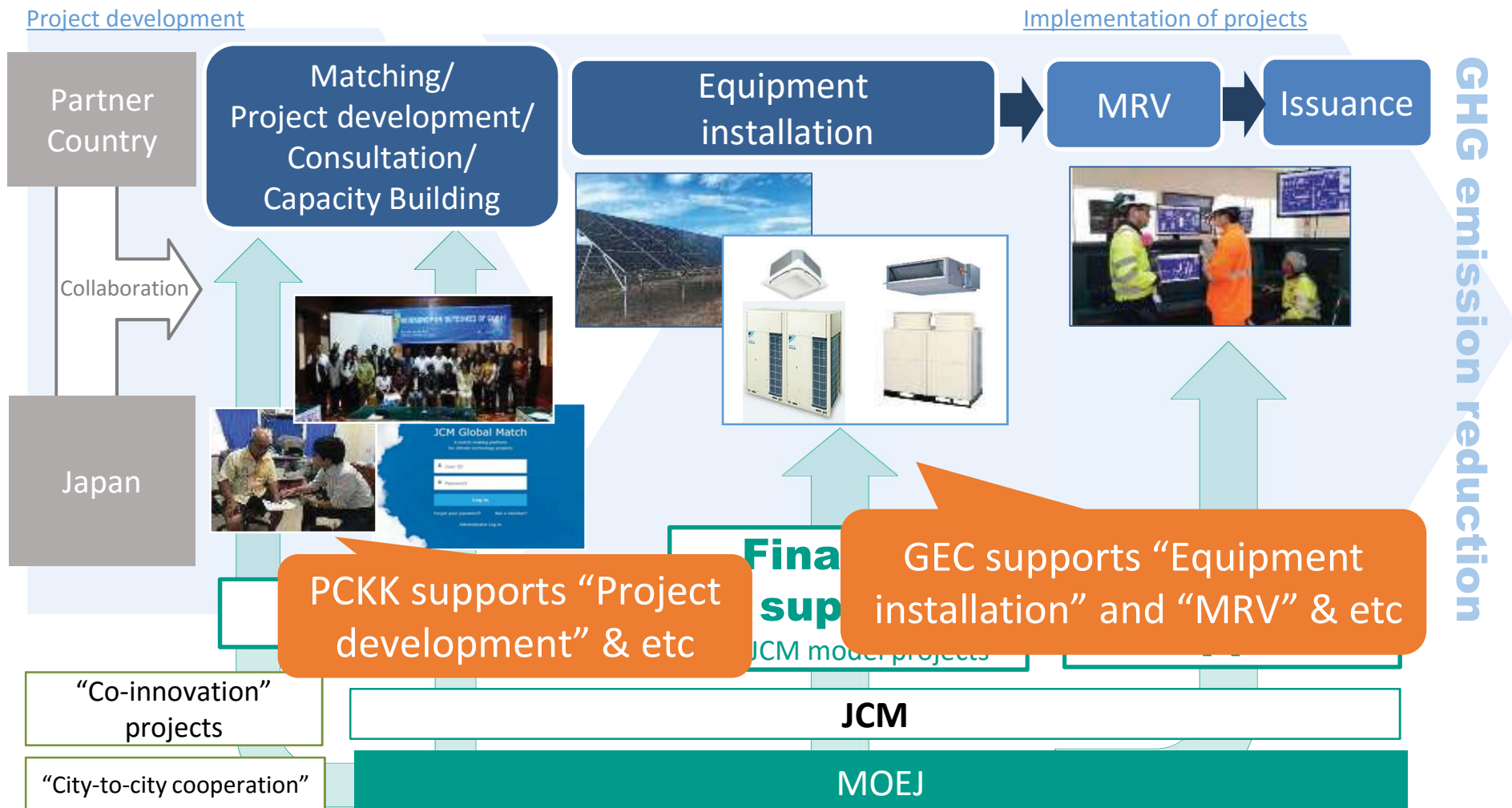
Total support for the JCM by MOEJ and more

- MOEJ provides total support for the JCM implementation from project development to issuance of JCM credits from projects.



Total support for the JCM by MOEJ and more

- MOEJ provides total support for the JCM implementation from project development to issuance of JCM credits from projects.



Thank you for your kind attention

Asante kwa umakini wako wa fadhili



Ministry of the Environment