



Ministry of the Environment

Recent Development of the Joint Crediting Mechanism (JCM)

December 10, 2020

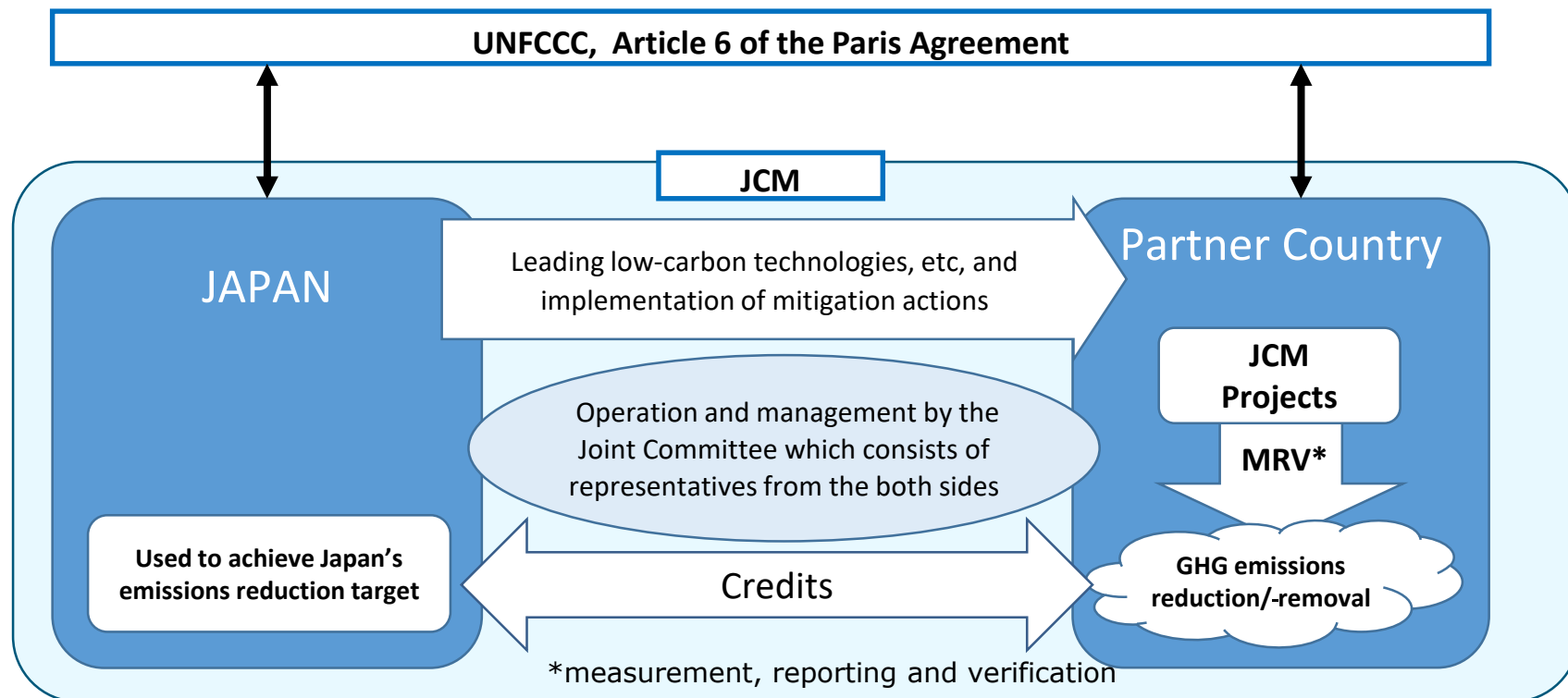
Ministry of the Environment ,Japan



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- 1. Overview of the JCM**
 2. Financial support scheme
 3. Recent Development of the JCM
-

Basic Concept of the Joint Crediting Mechanism (JCM)

- Facilitating diffusion of leading low-carbon or decarbonizing technologies ,etc and infrastructure as well as implementation of mitigation actions, and contributing to sustainable development of partner countries.
- Appropriately evaluating contributions from Japan to GHG emission reductions or removals in a quantitative manner and use them to achieve Nationally Determined Contribution(NDC) of each country.
- Contributing to the ultimate objective of the UNFCCC by facilitating global actions for GHG emission reductions or removals.



JCM Partner 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)



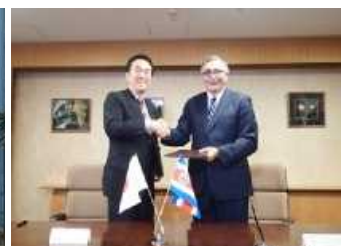
Viet Nam
Jul. 2, 2013
(Hanoi)



Lao PDR
Aug. 7, 2013
(Vientiane)



Indonesia
Aug. 26, 2013
(Jakarta)



Costa Rica
Dec. 9, 2013
(Tokyo)



Palau
Jan. 13, 2014
(Ngerulmud)



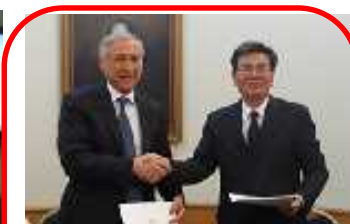
Cambodia
Apr. 11, 2014
(Phnom Penh)



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)



the Philippines
Jan. 12, 2017
(Manila)

JCM Financing Programme by MOEJ (FY2013-2020) as of Oct. 5, 2020

Total 172 projects

(● Model Project: 162 projects (including Eco Lease: 1 project), ■ ADB: 6 projects, ◆ REDD+: 2 projects, ▲ F-gas: 2 projects) Other 1 project in Malaysia

104 underlined projects have been started operation.

54 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: 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
- 8.8MW Waste Heat Recovery in Cement Plant
- 7.3MW Solar PV
- 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

Saudi Arabia: 2 projects

- Electrolyzer in Chlorine Production Plant
- 400MW Solar PV

Maldives: 3 projects

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

Ethiopia: 1 project

- 120MW Solar PV

Kenya: 2 projects

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

Laos: 5 projects

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

Thailand: 36 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
- 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
- ▲ Introduction of Scheme for F-gas Recovery and Destruction
- 37MW Solar PV and Melting Furnace
- Heat Exchanger in Fiber Factory
- 15MW Biomass Power Plant in Sugar Factory
- 8.1MW Solar PV
- Centrifugal Chiller to Machinery Factory
- 5MW Solar PV
- 2.6MW Solar PV
- 2.5MW Solar PV with Blockchain Technology

Mongolia: 9 projects

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

Viet Nam: 27 projects

- Digital Tachographs*
- Amorphous transformers 1*
- Air-conditioning in Hotel 1*
- 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
- 57MW solar PV
- Biomass Boiler to Soluble Coffee Manufacturing Plant
- Once-through Boiler to Food Factory
- Biomass Co-generation System to Food Factory
- Air-conditioning in Hotel 2

Mexico: 6 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
- 30MW Solar PV2

Philippines: 14 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
- 18MW Solar PV
- 0.16MW Micro Hydro Power Plant
- 33MW Wind Power
- 19MW Hydro Power Plant
- 2MW Solar PV (Eco Lease)
- Biogas Power Generation and Fuel Conversion
- 29MW 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: 35 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 1
- 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 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 2
- 6MW Hydro Power Plant 1
- 6MW Hydro Power Plant 2
- 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

Costa Rica: 2 projects

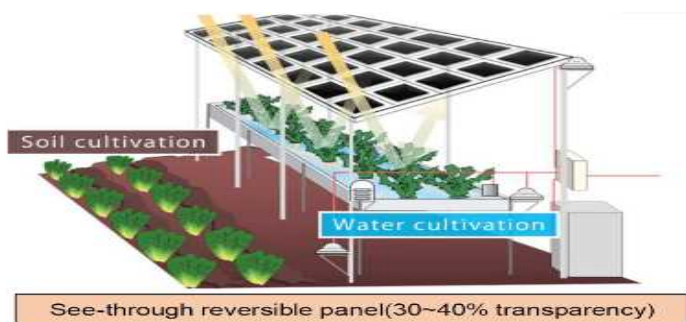
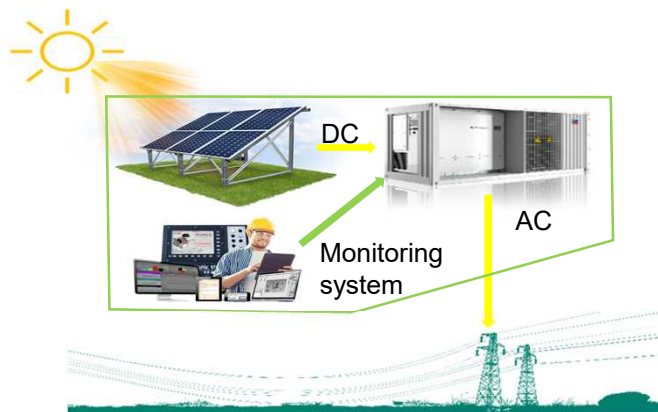
- 5MW Solar PV*
- Chiller and Heat Recovery System

Chile: 5 projects

- 1MW Rooftop Solar PV*
- 1.4MW Solar PV and 2.3MWh Storage Battery
- 3.4MW Rice Husk Power Generation
- 3MW Solar PV1
- 3MW Solar PV2

JCM Model Project in Chile

JCM Model Project (2020)
3MW Solar Power Project Utilizing Farmland in Valparaíso Region



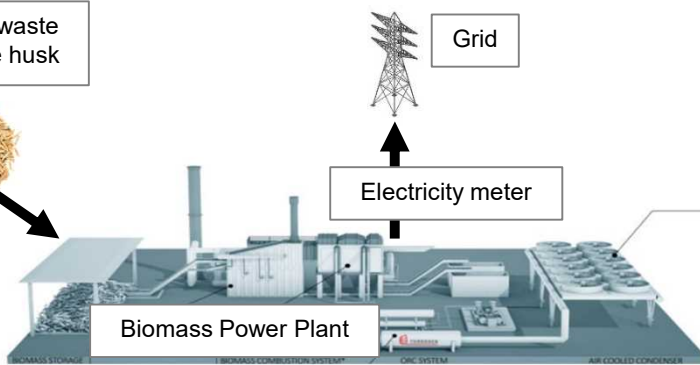
JCM Model Project (2019)
3.4MW Rice Husk Power Generation Project in Maule

Agriculture waste
such as rice husk



Electricity meter

Biomass Power Plant



JCM Model Project (2018)
1.4MW Solar Power and 2.3MWh Storage Battery Project
in San Pedro de Atacama City

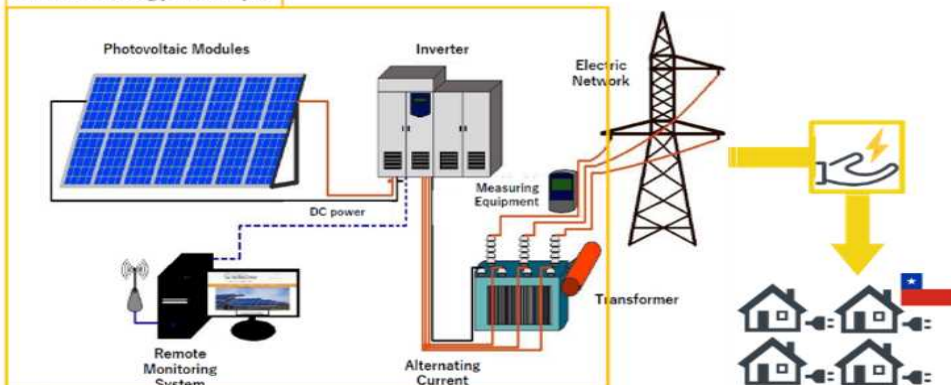


JCM Model Project (2016) [have been started operation]
Introduction of 1MW Rooftop Solar Power System to University



JCM Model Project (2019)
3MW Solar Power Project in Chillan, Ñuble Region

Farmdo Energy Chile SpA



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JCM Model Projects by MOEJ

Budget for projects starting from FY 2020 is 9 billion JPY
(approx. USD 90 million) in total by FY2022 (1 USD = 100 JPY)

Finance part of an
investment cost
(less than half)

Government of Japan

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

International consortiums
(which include Japanese entities)



JCM F-gas Recovery and Destruction Model Project by MOE

【Budget for FY 2020】

61 million JPY (approx. 0.61 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 (Ex. 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

Memorandum of Cooperation between World Bank Group and MOEJ

- Cooperate to identify suitable WBG programs where the MOEJ could potentially participate through appropriate identified means and jointly develop mitigation outcomes from the projects using the JCM methodology
- Explore the possibility to scale up the JCM projects under the PMR and PMR Successor Program
- In consultation with the relevant Bank counterparts in client countries and subject to the Bank's Access to Information Policy, the Bank will share information on identified candidate programs with the Ministry to explore and examine potential arrangements of the pilot projects with the JCM including utilization of Measurement, Reporting and Verification ("MRV") methodologies under the JCM and potential replication and scaling up of JCM projects under the programs.

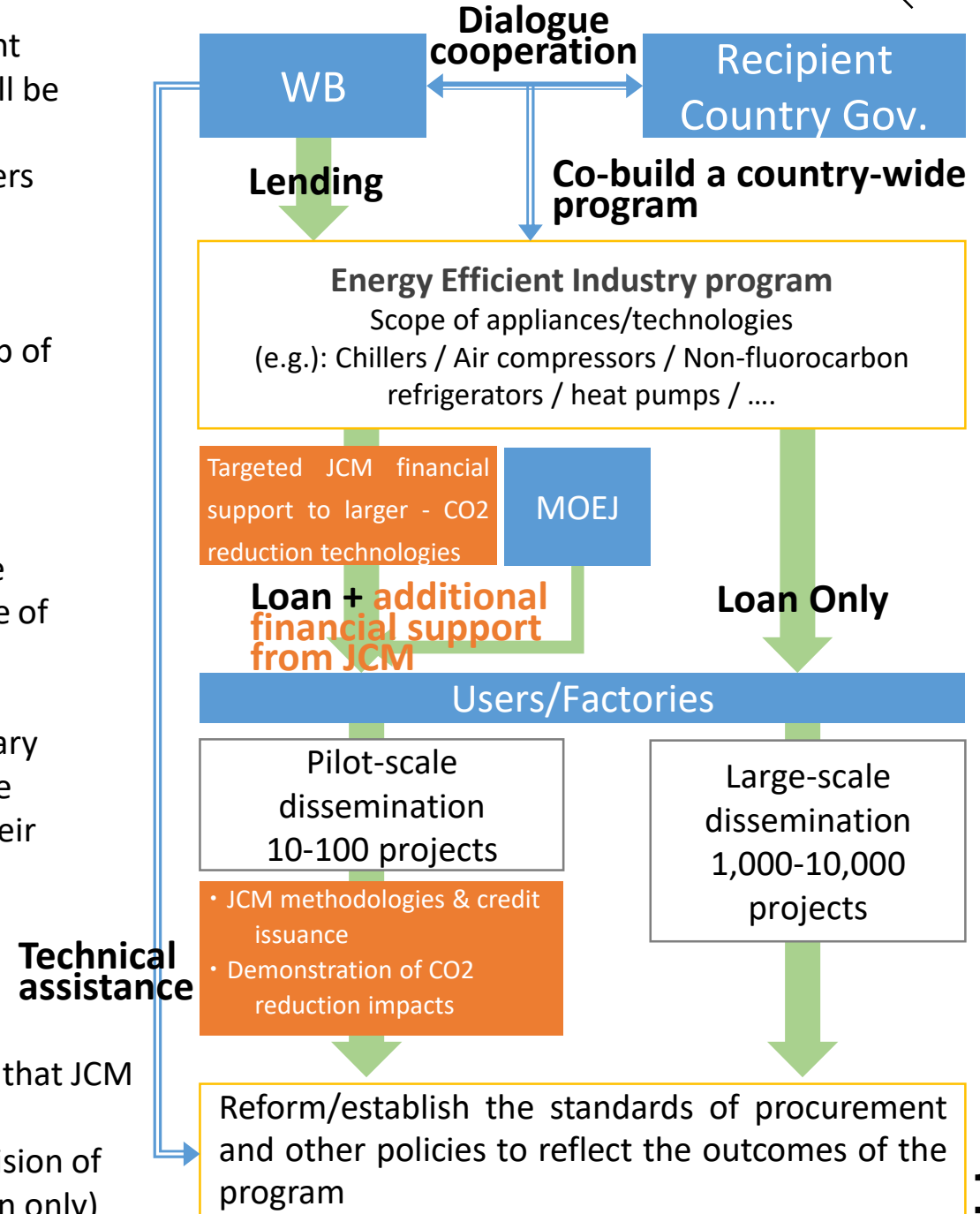


Collaboration: JCM Model Project and WB Program

- ◆ Under the agreed program by the WB and the recipient government, two different supporting mechanisms will be established.
 - ✓ One is to provide only low-interest loan to end users while the other is to provide both such loan and a JCM finance to end users.
 - ✓ Scope and conditions of the JCM finance will be determined by the WB and the government on top of the regular conditions of JCM financing support scheme.
- ◆ As the number of projects will differ between the two mechanisms and JCM-financed projects will take more time to complete, there will be a difference of timeline of dissemination of technologies.
 - ✓ The reflection of such technologies in relevant standards under laws or legal documents would vary also depending on the technologies partly because JCM-financed technologies would demonstrate their specifications of emissions reduction while others would not and also because the level of dissemination of such technologies.

Other potential collaboration

- Cooperation on policy reform only – on technologies that JCM has already disseminated
- Cooperation on large infrastructure projects with division of labor (e.g. JCM supports energy production/reduction only)



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Recent Development: SDGs, Gender Guideline and CORSIA

JOINT CREDITING MECHANISM CONTRIBUTIONS TO SUSTAINABLE DEVELOPMENT GOALS

- The first publication to analyze the interlinkage between the JCM and SDGs. It aims to clarify how the JCM contributes to SDGs.
- Accelerate further contribution towards SDGs through the JCM project implementation.



Guideline on Gender Equality for the Joint Crediting Mechanism (JCM)

- MOEJ developed the “Guideline on Gender Equality for the Joint Crediting Mechanism (JCM)” with the aim of encouraging mainly representative participants and partner participants of the JCM Model Projects to take action toward gender equality.
- This guideline shows recommended actions to be taken at all the stages of the project cycle (planning, implementation, and monitoring) to realize gender equality.

Application for Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

- The JCM between Mongolia and Japan applied for the assessment of CORSIA eligible emission units.
- Applications is based on mutual understanding and submitted by Japan and each partner country.

Collaboration with International Organizations

- **World Bank:** Memorandum of Cooperation for scaling-up of the Joint Crediting Mechanism.
- **ADB:** Cooperation on Japan Fund for the JCM and Article 6 of PA and SDGs
- **UNIDO:** Signed Joint Declaration on Environmental Cooperation in order to support the JCM.

Contributions to “SDGs” through JCM Model Projects

JCM Model Projects are contributing to the SDGs including improving gender equality in partner countries.

Employment/Food/Energy Access

- ◆ Installation of 12.7 MW Solar Power Plant for Power Supply In Ulaanbaatar Suburb
- ◆ Reduction of air pollution and stable power supply
- ◆ Improving farm management by utilizing solar power sales income



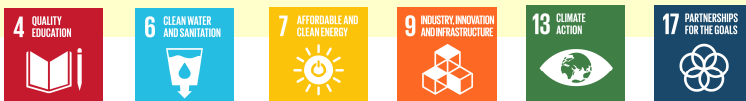
Health/Energy Access

- ◆ Introduction of Waste to Energy Plant in Yangon City
- ◆ Since there is no need for landfill disposal, methane emissions are reduced and contribute to improving air pollution
- ◆ High-efficiency stalker incinerator recovers exhaust gas to maximize heat recovery rate



Education/Clean water

- ◆ Introduction of High Efficiency Water Pumps in Da Nang City
- ◆ By providing technical training on pump operation and maintenance, we have achieved stable operation of the water purification plant equipment and achieved high quality water supply.

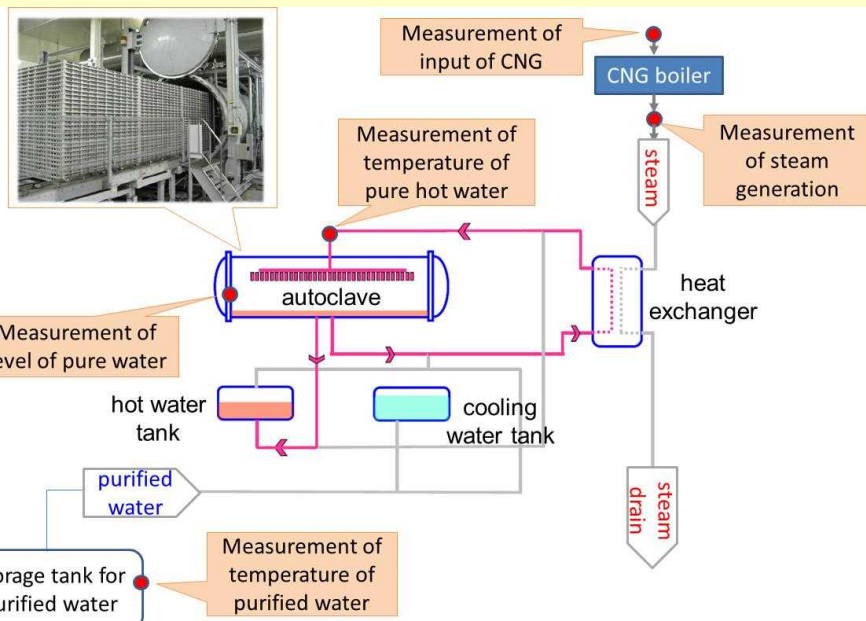


Addressing to COVID-19 through JCM Model Projects

- Damage caused by COVID-19 is serious in many countries with weak social infrastructure.
- JCM Model projects, which support local corporate activities, support the social infrastructure of countries and play an important role in “Sustainable and Resilient Recovery”.

Contribution to the medical supply chain

- ◆Energy Saving by Introducing High Efficiency Autoclave to Infusion Manufacturing Factory
- ◆Under the influence of COVID-19, it supported by expanding productivity while ensuring product safety in the sterilization process.



Contribution to the medical supply chain

- ◆Introduction of High Efficiency Injection Molding Machine to Plastic Parts Factory
- ◆Demand for plastic caps for bottles of chemicals such as alcohol increased sharply, but it responded to an unexpected increase in demand.



Contribution to reducing infection risk

- ◆Introduction of High Efficiency LED Lighting Utilizing Wireless Network
- ◆Since it was possible to remotely control from Japan, there was no need to directly turn on/off the light, which contributed to the spread of infection.



Conclusion

JCM Model Projects can contribute to:

- Greenhouse gas emission reductions
- Recovery from COVID-19
- Achievement of the SDGs

MOEJ will continue to promote the JCM as a pillar of decarbonization policy while deepening cooperation with partner countries.

