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いま選ぼう。

環境省
Ministry of the Environment

The Joint Crediting Mechanism

Japan's contribution through market mechanism

G7 2016 ISE-SHIMA SUMMIT

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The First Issuance of JCM Credits on May 13th

The JCM credits were issued for the first time in May 13th, under the JCM between Indonesia and Japan

Energy Efficient Refrigerants to Cold Chain Industry
MAYEKAWA MFG / PT Adib Global Food Supplier

Issued credit amount

40 t-CO_2

for 6 months

The Joint Crediting Mechanism

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

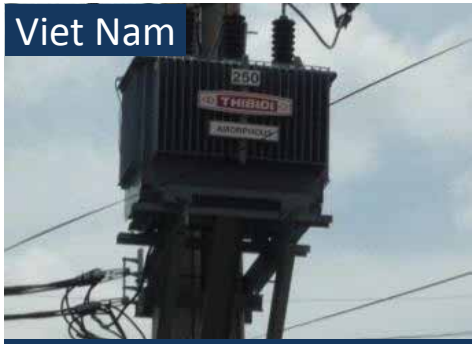
Indonesia

Waste heat recovery in Cement Industry

Viet Nam

Eco-driving with digital tachogragh

Viet Nam



High efficient transformers in power distribution

Palau

Solar power plant for commercial facilities

Indonesia

Energy saving at convenience store

Mongolia

High efficient boiler for heating

JCM Partner Countries

16 partner countries (as of May 2016)

Mongolia
Jan. 8, 2013
（Ulaanbaatar）

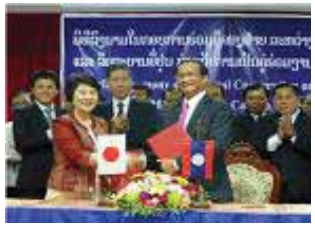
Bangladesh
Mar. 19, 2013
(Dhaka)

Ethiopia
May 27, 2013
(Addis Ababa)

Kenya
Jun. 12,2013
(Nairobi)

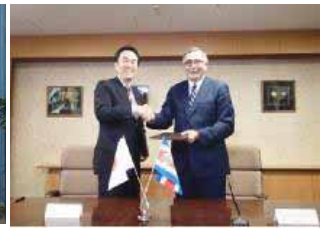
Maldives
Jun. 29, 2013
(Okinawa)

Viet Nam
Jul. 2, 2013
(Hanoi)



Lao PDR
Aug. 7, 2013
(Vientiane)

Indonesia
Aug. 26, 2013
(Jakarta)

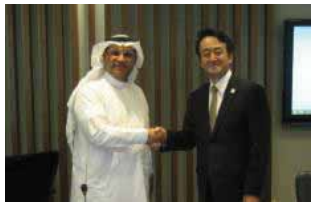


Costa Rica
Dec. 9, 2013
(Tokyo)

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)

Progress of the JCM in each partner country as of May 15th 2016

Partner countries	Signing	No. of JC	No. of registered projects	No. of approved methodologies	Pipeline (Model & demonstration projects in FY13-15)
Mongolia	Jan 2013	3	2	2	4
Bangladesh	Mar 2013	3		1	5
Ethiopia	May 2013	2		1	1
Kenya	Jun 2013	2		1	3
Maldives	Jun 2013	2		1	2
Viet Nam	Jul 2013	4	4	5	14
Lao PDR	Aug 2013	1			2
Indonesia	Aug 2013	5	5 （1 in process）	10	22
Costa Rica	Dec 2013	1			
Palau	Apr 2014	3	1 （2 in process）	1	3
Cambodia	Apr 2014	2		1	2
Mexico	Jul 2014	1			
Saudi Arabia	May 2015	1			1
Chile	May 2015	None			
Myanmar	Sep 2015	1			1
Thailand	Nov 2015	1			7
Total	16	32	12 （3 in process）	23	67

Days taken in each the steps of JCM project cycle (comparison to the CDM)

Steps in the project cycle	Days	
	JCM	CDM
From start of public comments/inputs for methodology to approval of methodology	70 days[1]	288 days[2]
From start of public comments/inputs for project to request for registration	49 days[1]	382 days[3]
From request for registration to registration	24 days[1]	79 days[3]
From request for credit issuance to decision of credit issuance	21 days[1]	85 days[4]

Source: [1] JCM website
[2] CDM pipeline (UNEP RISO)
[3] IGES CDM Project Database
[4] IGES CDM Monitoring and Issuance Database
(As of May 9th 2016)

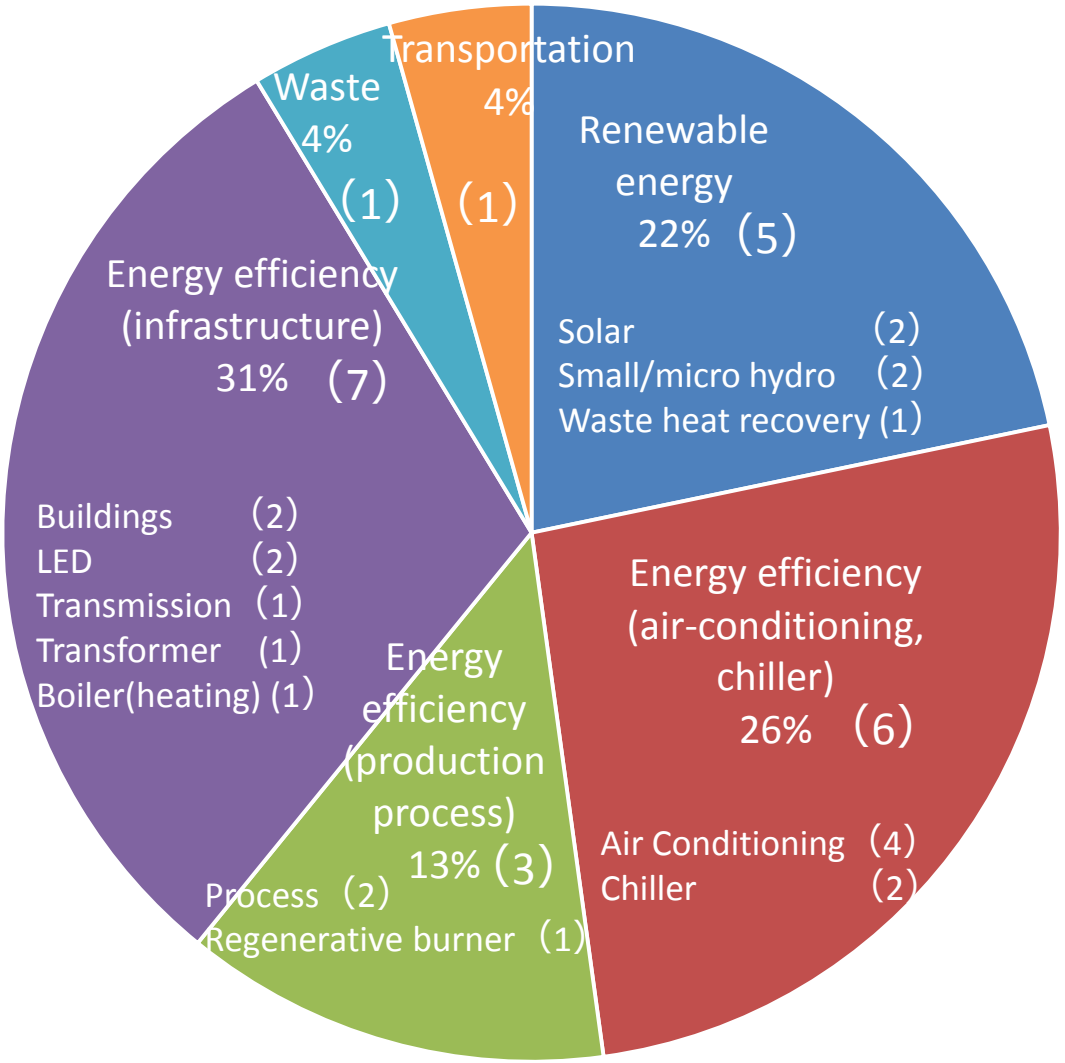
Approved methodologies

23 approved methodologies (as of 15 May 2016)

Countries

Partner countries	No.
Indonesia	10
Viet Nam	5
Mongolia	2
Palau	1
Maldives	1
Kenya	1
Bangladesh	1
Cambodia	1
Ethiopia	1
9 countries	23

Sectors



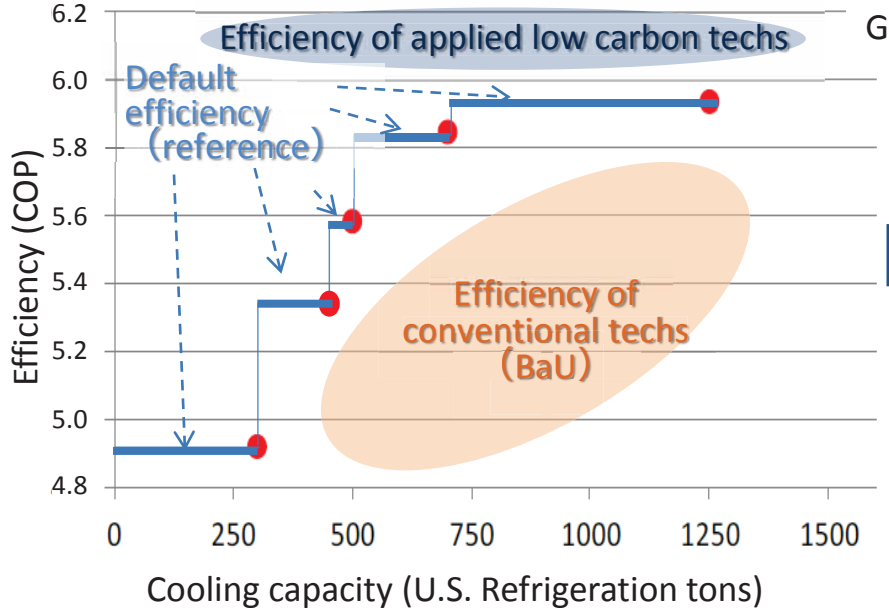
Example of a JCM methodology

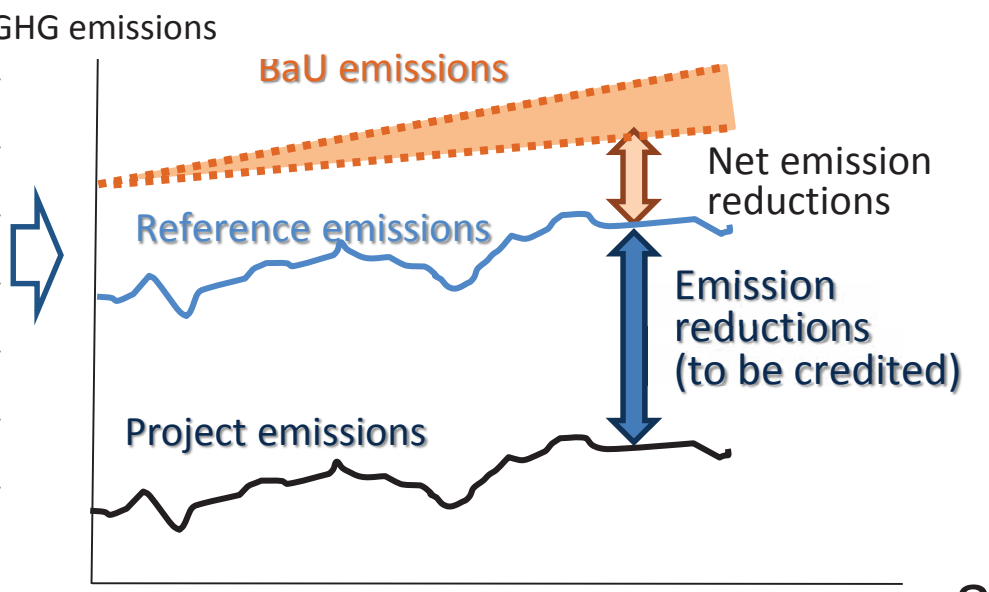
- ✓ Simplifying calculation
- ✓ Reducing monitoring burden
- ✓ Ensuring global net emission reductions

⇨ **Conservatively set reference emissions & default values**

e.g.） Energy efficiency of chiller & refrigerator in a factory

The emission reductions are calculated as the deference of emissions between by the most efficient technology which is commercially available in the host country (reference emissions) and by the low carbon technology which is introduced by a JCM project. This way each project participant does not have to identify BaU (business as usual) scenario as per the project implementation





Emission reduction potential by JCM projects (1/2)

【e.g.1】 Waste heat recovery (WHR) in cement factory

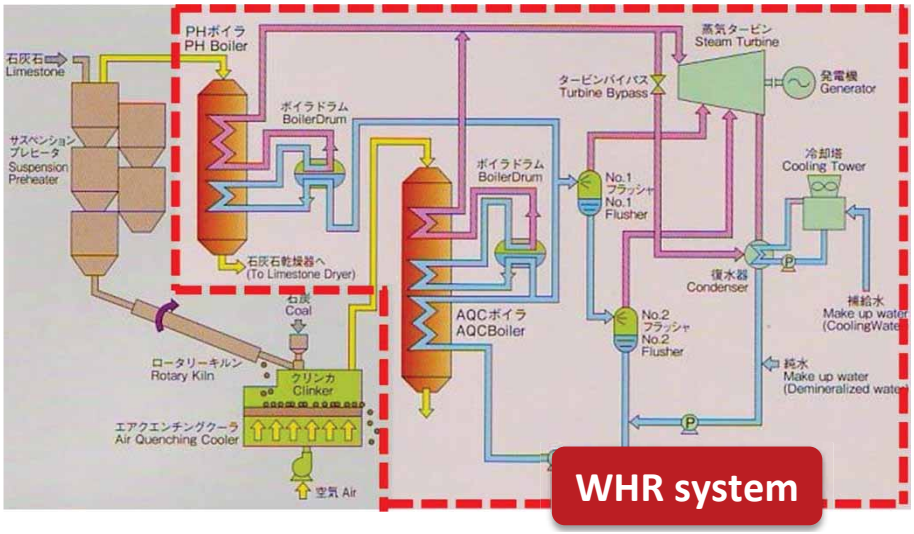
WHR system generates electricity through waste heat recovered from cement production facility which was not utilized before resulting in GHG emission reductions

Actual project

The project installs WHR system in a factory in Tuban city in Indonesia which produces 16% of the country's entire cement productions. The capacity of the system is 28MW. Expected to start operation in the end of 2016.

Estimated emissions reductions

122,000 tCO_2/year



Potentials

In Indonesia, there are only 2 factories which have installed WHR system. Potentials also exist in the other partner countries as WHR is not commonly installed in these countries.

	Cement productions (million t/y)	Potential emission reductions (thousand tCO2/y)
Indonesia	450	710
Viet Nam	225	250
Thailand	450	490
Mexico	243	340
Total	1,368	**1,790**

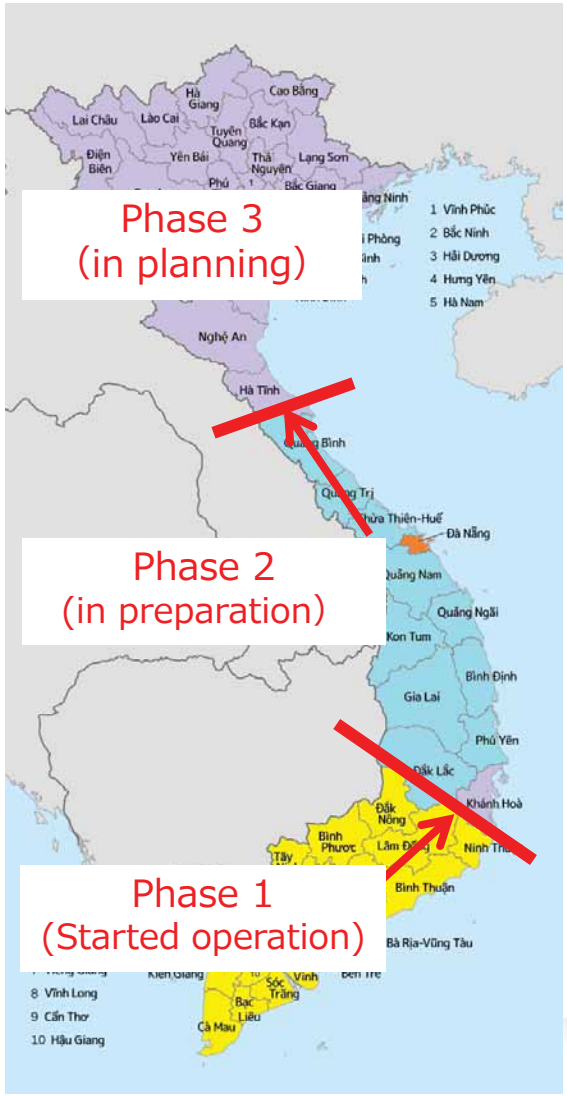
Source: JFE Engineering

Cement production by Japan：
61 million t/y (2014)

Emission reduction potential by JCM projects (2/2)

【e.g. 2】 Installation of energy efficient transformers with amorphous metal core

Installation of energy efficient transformers in a power distribution grid to reduce no-load losses by transformers by 60%



Actual project

Phase 1 (started operation)

Installed 1,618 transformers

Potential emission reductions **632** tCO_2/y

Potentials

Phase 2 (in preparation)

Plan to install 4,834 transformers

Potential emission reduction **4,360** tCO_2/y

Phase 2 (in planning stage)

Plant to install transformers in Northern Viet Nam

In Mongolia, the similar project is planned in cooperation with Asia Development Bank

JCM Model Projects by MOEJ

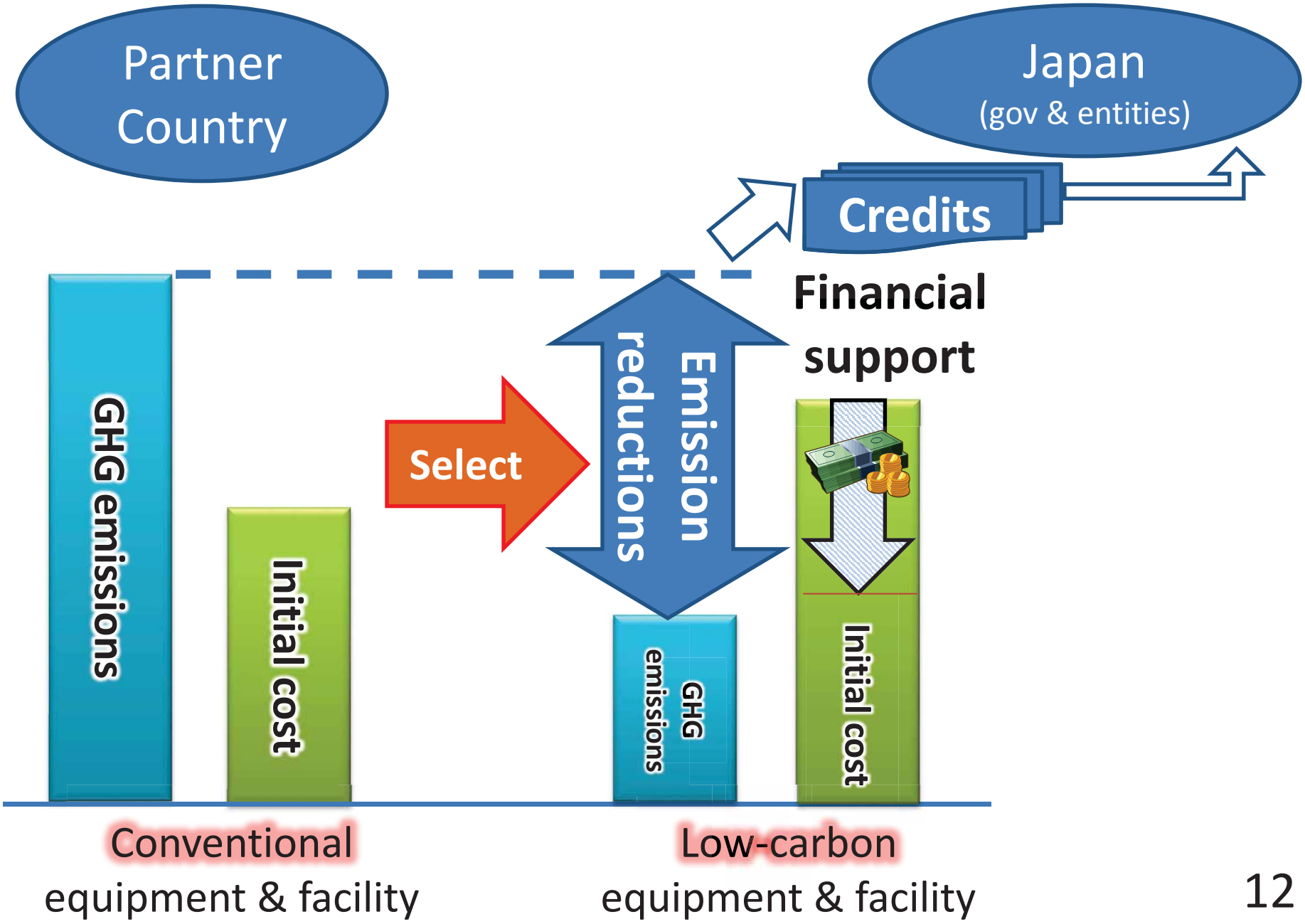
Government of Japan

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

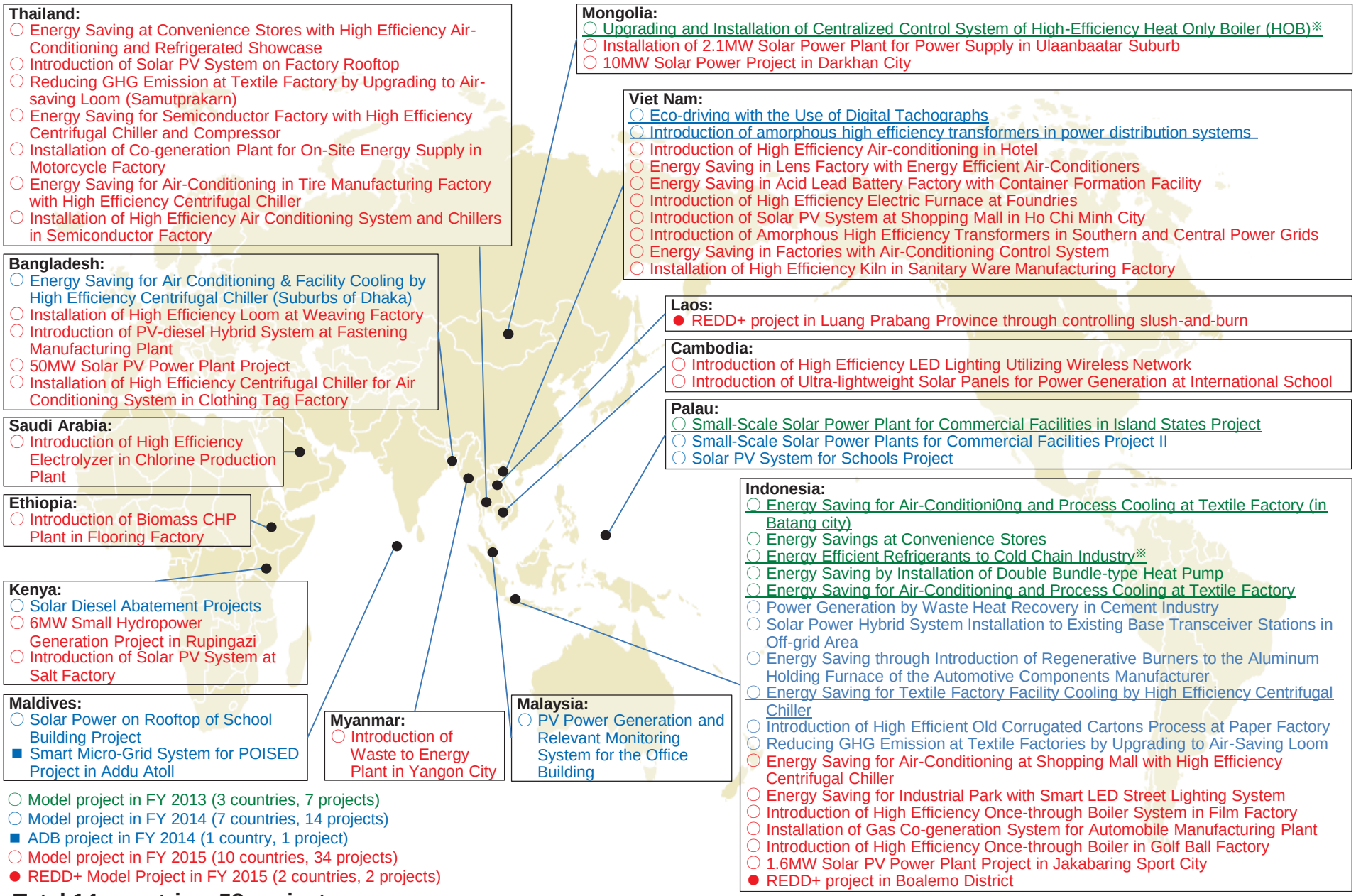
MRV and deliver at least half of JCM credits

International consortiums (which include Japanese entities)

Merits for JCM Partner Country by the JCM Financing Program by MOEJ



JCM Financing programs by MOEJ（FY2013/2014/2015）as of May 15 2016



Thailand:
- ○ Energy Saving at Convenience Stores with High Efficiency Air-Conditioning and Refrigerated Showcase
- ○ Introduction of Solar PV System on Factory Rooftop
- ○ Reducing GHG Emission at Textile Factory by Upgrading to Air-saving Loom (Samutprakarn)
- ○ Energy Saving for Semiconductor Factory with High Efficiency Centrifugal Chiller and Compressor
- ○ Installation of Co-generation Plant for On-Site Energy Supply in Motorcycle Factory
- ○ Energy Saving for Air-Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller
- ○ Installation of High Efficiency Air Conditioning System and Chillers in Semiconductor Factory

Bangladesh:
- ○ Energy Saving for Air Conditioning & Facility Cooling by High Efficiency Centrifugal Chiller (Suburbs of Dhaka)
- ○ Installation of High Efficiency Loom at Weaving Factory
- ○ Introduction of PV-diesel Hybrid System at Fastening Manufacturing Plant
- ○ 50MW Solar PV Power Plant Project
- ○ Installation of High Efficiency Centrifugal Chiller for Air Conditioning System in Clothing Tag Factory

Saudi Arabia:
- ○ Introduction of High Efficiency Electrolyzer in Chlorine Production Plant

Ethiopia:
- ○ Introduction of Biomass CHP Plant in Flooring Factory

Kenya:
- ○ Solar Diesel Abatement Projects
- ○ 6MW Small Hydropower Generation Project in Rupingazi
- ○ Introduction of Solar PV System at Salt Factory

Maldives:
- ○ Solar Power on Rooftop of School Building Project
- ■ Smart Micro-Grid System for POISED Project in Addu Atoll

Myanmar:
- ○ Introduction of Waste to Energy Plant in Yangon City

Malaysia:
- ○ PV Power Generation and Relevant Monitoring System for the Office Building

Mongolia:
- ○ Upgrading and Installation of Centralized Control System of High-Efficiency Heat Only Boiler (HOB)※
- ○ Installation of 2.1MW Solar Power Plant for Power Supply in Ulaanbaatar Suburb
- ○ 10MW Solar Power Project in Darkhan City

Viet Nam:
- ○ Eco-driving with the Use of Digital Tachographs
- ○ Introduction of amorphous high efficiency transformers in power distribution systems
- ○ Introduction of High Efficiency Air-conditioning in Hotel
- ○ Energy Saving in Lens Factory with Energy Efficient Air-Conditioners
- ○ Energy Saving in Acid Lead Battery Factory with Container Formation Facility
- ○ Introduction of High Efficiency Electric Furnace at Foundries
- ○ Introduction of Solar PV System at Shopping Mall in Ho Chi Minh City
- ○ Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grids
- ○ Energy Saving in Factories with Air-Conditioning Control System
- ○ Installation of High Efficiency Kiln in Sanitary Ware Manufacturing Factory

Laos:
- ● REDD+ project in Luang Prabang Province through controlling slush-and-burn

Cambodia:
- ○ Introduction of High Efficiency LED Lighting Utilizing Wireless Network
- ○ Introduction of Ultra-lightweight Solar Panels for Power Generation at International School

Palau:
- ○ Small-Scale Solar Power Plant for Commercial Facilities in Island States Project
- ○ Small-Scale Solar Power Plants for Commercial Facilities Project II
- ○ Solar PV System for Schools Project

Indonesia:
- ○ Energy Saving for Air-Conditioni0ng and Process Cooling at Textile Factory (in Batang city)
- ○ Energy Savings at Convenience Stores
- ○ Energy Efficient Refrigerants to Cold Chain Industry※
- ○ Energy Saving by Installation of Double Bundle-type Heat Pump
- ○ Energy Saving for Air-Conditioning and Process Cooling at Textile Factory
- ○ Power Generation by Waste Heat Recovery in Cement Industry
- ○ Solar Power Hybrid System Installation to Existing Base Transceiver Stations in Off-grid Area
- ○ Energy Saving through Introduction of Regenerative Burners to the Aluminum Holding Furnace of the Automotive Components Manufacturer
- ○ Energy Saving for Textile Factory Facility Cooling by High Efficiency Centrifugal Chiller
- ○ Introduction of High Efficient Old Corrugated Cartons Process at Paper Factory
- ○ Reducing GHG Emission at Textile Factories by Upgrading to Air-Saving Loom
- ○ Energy Saving for Air-Conditioning at Shopping Mall with High Efficiency Centrifugal Chiller
- ○ Energy Saving for Industrial Park with Smart LED Street Lighting System
- ○ Introduction of High Efficiency Once-through Boiler System in Film Factory
- ○ Installation of Gas Co-generation System for Automobile Manufacturing Plant
- ○ Introduction of High Efficiency Once-through Boiler in Golf Ball Factory
- ○ 1.6MW Solar PV Power Plant Project in Jakabaring Sport City
- ● REDD+ project in Boalemo District

○ Model project in FY 2013 (3 countries, 7 projects)
○ Model project in FY 2014 (7 countries, 14 projects)
■ ADB project in FY 2014 (1 country, 1 project)
○ Model project in FY 2015 (10 countries, 34 projects)
● REDD+ Model Project in FY 2015 (2 countries, 2 projects)

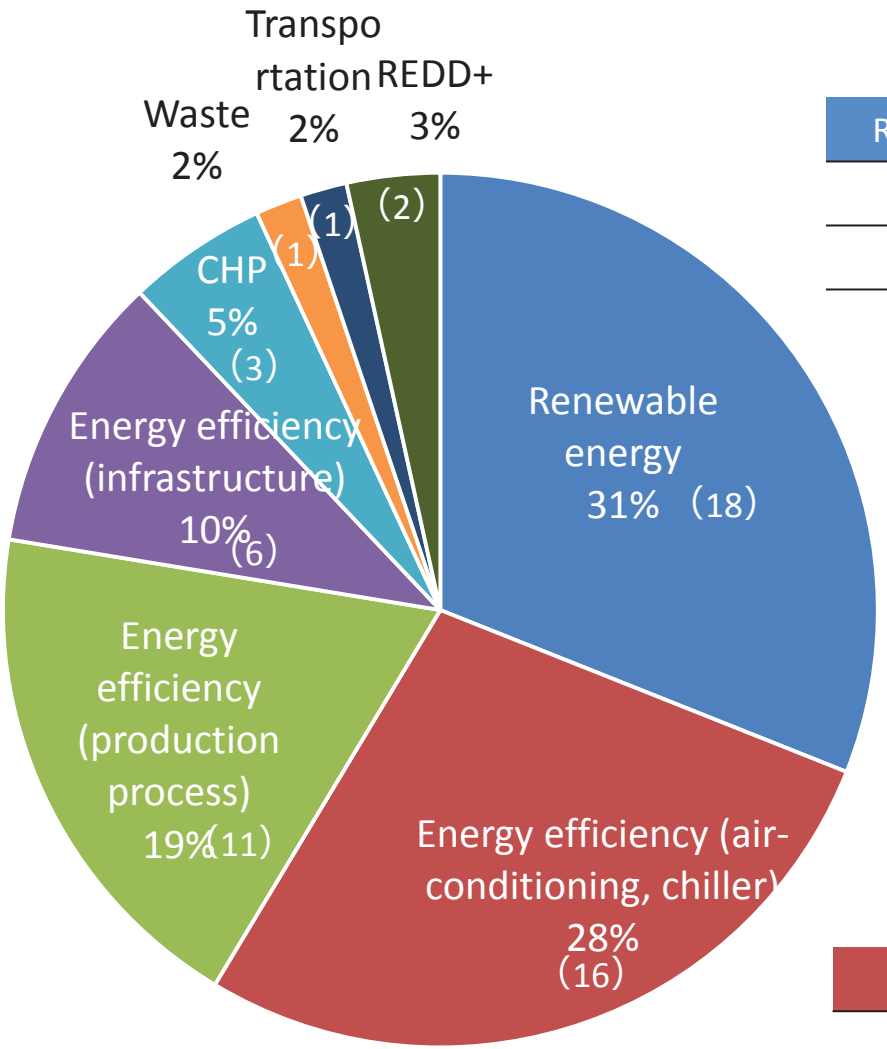
Total 14 countries, 58 projects

The underlined projects have been registered as the JCM projects (10 projects)

※these projects account for 2 registered JCM projects respectively, as they're operating in different sites

Sectors of selected JCM model projects by MOEJ

58 projects in 14 countries (as of 15 May 2016)



Energy efficiency (infrastructure)	No.
Electric transformer	2
LED street lights	2
Boiler (heating)	1
Smart grid	1

Renewable energy	No.
Solar	16
Micro hydro	1
WHR	1

Energy efficiency (production process)	No.
Looms	3
Burner	3
Steam boiler	2
Electrolysis tank	2
Production line	1

Energy efficiency	No.
Air conditioning	13
Chiller	3