



**Session 2 - Joint Crediting Mechanism Implementation in Mongolia
Japan's Financing Programs for JCM
(Joint Crediting Mechanism)**



**Wednesday, 24 August 2016
Overseas Environmental Cooperation Center, Japan (OECC)
Shiro Yoshida**

Confidential



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11



At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal.

THE KEY ELEMENTS



The aim: to keep the increase in global average temperature to well below 2°C and to 1.5°C if possible.



The objective: to level off GHG emission ASAP.



The principal: to differentiate b/w developed and developing countries. developed countries must lead the way for reduction of emission and support developing countries in implementing this.



The means: Countries must submit Intended Nationality Determined Contributions (INDCs) which are revised upward every 5 years.
The 1st report is due in 2023.



The financing: from 2020, rich countries must contribute at least \$100 billion per year. This amount will be reviewed in 2025.



Entry in force: 2020 if the Agreement is ratified by 55 countries according for 55% of global GHG emission.



Market mechanism: Utilization of market mechanisms such as the Joint Crediting Mechanism (JCM)..



Statement by Prime Minister Shinzo Abe at the COP21



(Excerpt)

The second component of Japan's new set of contribution is innovation. The key to acting against climate change without sacrificing economic growth is the development of innovative technologies. To illustrate, there are technologies to produce, store and transport hydrogen towards realizing CO₂-free societies, and a next-generation battery to enable an electric car to run 5 times longer than the current level. By next spring Japan will formulate the "Energy and Environment Innovation Strategy." Prospective focused areas will be identified and research and development on them will be strengthened. (snip)

In addition, many of the advanced low-carbon technologies do not generally promise investment-return to developing countries. Japan will, while lowering burdens of those countries, promote diffusion of advanced low carbon technologies particularly through implementation of the JCM.

3rd JCM Partner Countries' High-level Meeting" was held in COP21.



Ms. Tamayo Marukawa, former Minister of the Environment, Japan



**Mr. Namdag Battserreg,
former Minister of Environment, Green Development and Tourism, Mongolia**

JCM

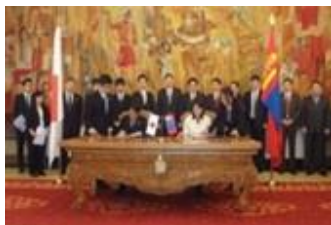
(Joint Crediting Mechanism)

Mongolia is the first to launch Joint Crediting Mechanism (JCM) on 8 January 2013, out of the 16 countries that signed bilateral agreements with the Government of Japan.



JCM Partner Countries

16 partner countries (as of August 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)



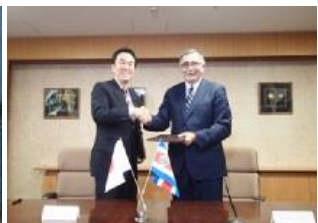
Viet Nam
Jul. 2, 2013
(Hanoi)



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)

Registered Projects

Project title	Reg. date	Emission reduction	Project Participants	
			Mongolia	Japan
Centralization of heat supply system by installation of high-efficiency Heat Only Boilers in Bornuur soum Project	30 Jun 2015	206 tCO ₂ p.a.	Anu Service Co., Ltd.	Suuri-Keikaku Co., Ltd.
Installation of high-efficiency Heat Only Boilers in 118th School of Ulaanbaatar City Project	30 Jun 2015	92 tCO ₂ p.a.	Anu Service Co., Ltd.	Suuri-Keikaku Co., Ltd.



Approved Methodologies

Methodology title	Approval date
Replacement and Installation of High Efficiency Heat Only Boiler (HOB) for Hot Water Supply Systems	28 Jan 2015
Installation of energy-saving transmission lines in the Mongolian Grid	20 Feb 2014

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

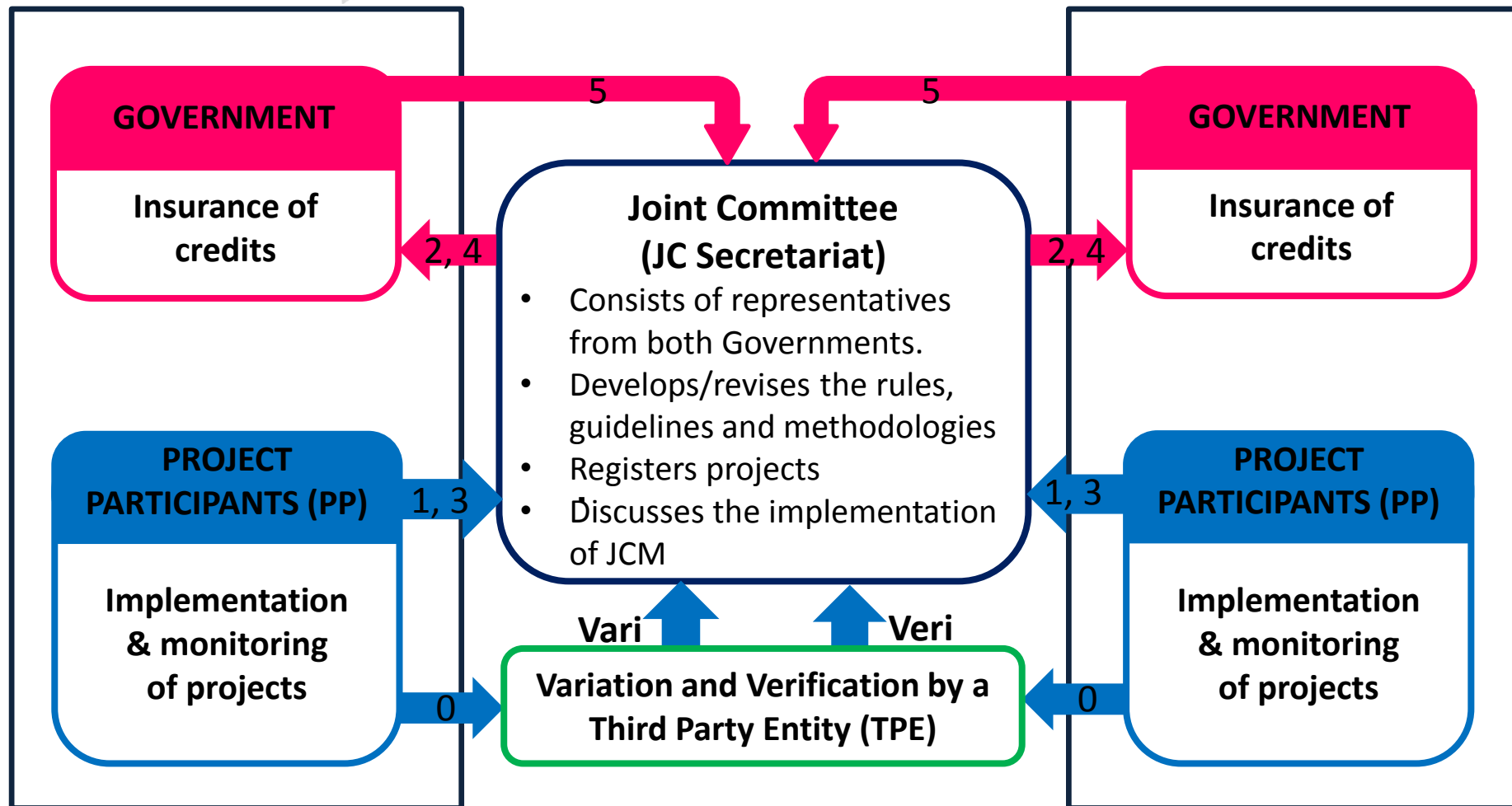


Scheme of the JCM

JAPAN



Partner Country



0. Submit PDD*/monitoring reports
1. Request registration of projects
2. Notifies registration of projects

3. Request issuance of credits
4. Notifies issuance of credits
5. Reports issuance of credits

The roles of the Joint Committee (JC)

The Joint Committee (JC) consists of representatives from both Governments.

- To develop rules and guidelines necessary for the implementation of the JCM.
- To approve or reject the proposed JCM methodologies.
- To designate the third-party entities (TPEs).
- To decide on whether to register JCM projects validated by the TPEs.
- Each Government establishes and maintains a registry.
- On the basis of notification for issuance of credits by the JC, each Government issues the notified amount of credits to its registry.

Current JC members



Ministry of Environment, Green Development and Tourism

Ministry of Mining

Ministry of Road and Transportation

Ministry of Industry

Ministry of Energy

Air Quality Agency of Capital City

Ministry of Foreign Affairs

Ministry of Food and Agriculture

Ministry of Construction and Urban Development



Embassy of Japan in Mongolia

Ministry of Foreign Affairs

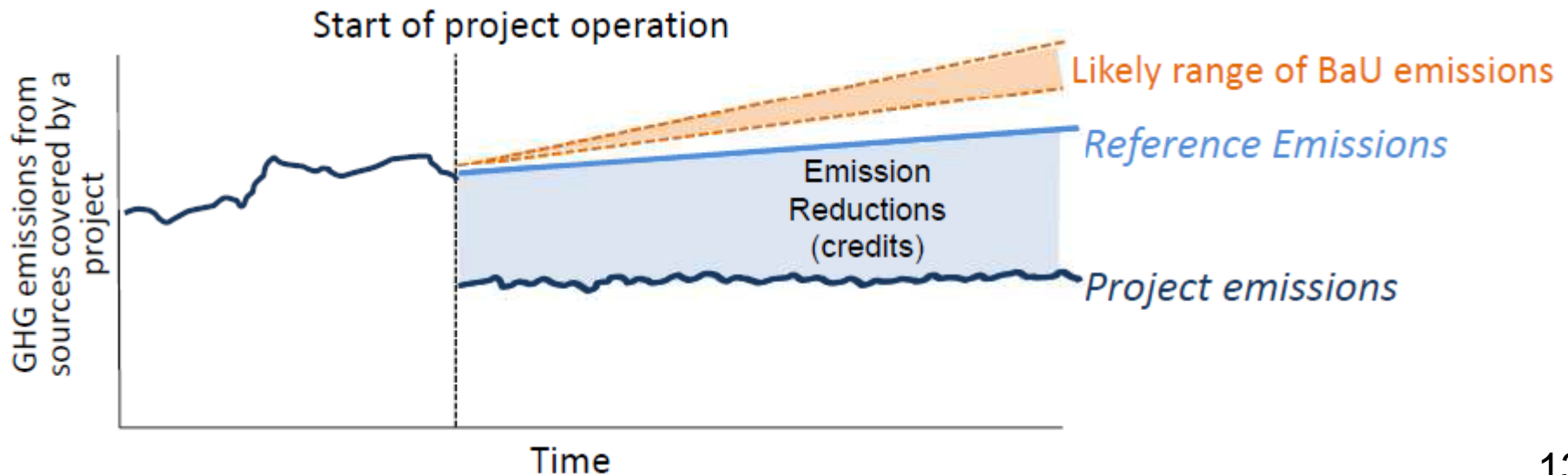
Ministry of Economy, Trade and Industry

Ministry of the Environment

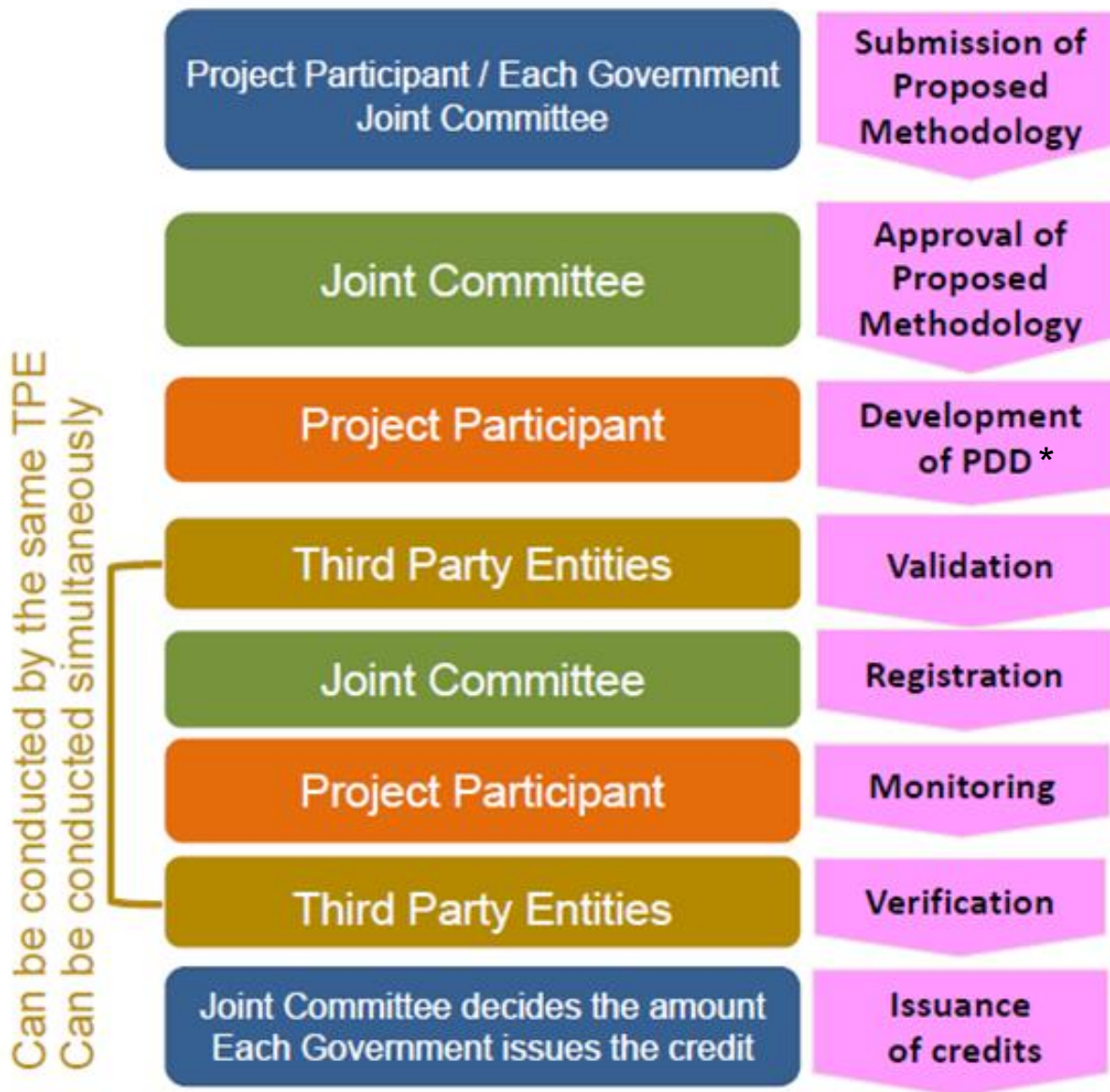
Embassy of Japan in Mongolia

- The JCM starts its operation as a **non-tradable credit type** mechanism.
- Both Governments continue consultation for the transition to a tradable credit type mechanism and reach a conclusion at the earliest possible timing, taking account of implementation of the JCM.
- The JCM covers the period until a possible coming into effect of a new international framework under the UNFCCC.
- Emission reductions to be credited are defined as the difference between “reference emissions” and “project emissions”.

$$ER_p = RE_p - PE_p$$



Project Cycle of JCM



JCM Programs by Government of Japan

Summary of JCM Financing Program

JCM Model Project by MOEJ (with JICA)

- ✓ Finances up to 50% of an investment cost for facilities, equipment, transportation fee, etc. which reduce CO2 from fossil fuel combustion.
- ✓ Includes collaboration with projects supported by JICA and other government-affiliated financial institute.

JCM REDD+ Model Project by MOEJ (with JICA)

- ✓ At least half or ratio of financial support to project cost of JCM credits issued are expected to be delivered to the government of Japan except the amount which is allocated to the partner country based on its legislation.
* These projects may be implemented in cooperation with other organizations such as JICA.

ADB Japan Fund for JCM (JFJCM)

- ✓ Established and announced by MOEJ and ADB.
- ✓ To provide financial incentives for adoption of advanced low-carbon technologies in ADB-financed projects.

JCM Feasibility Studies

- ✓ MOEJ Feasibility Study
- ✓ METI Feasibility Study.

JCM Demonstration Project by METI (Implemented by NEDO*)

- ✓ Coverage of project cost necessary for MRV, e.g. Cost of design, machines, materials, labor, travel, etc.
- ✓ Eligibility: Concrete Projects to demonstrate the effectiveness of leading Japanese technologies and/or products installed and operated in the projects, and the amount of their GHG emission reduction with MRV methodology by actual operation.

JCM Model Projects by MOEJ

The budget for projects starting from FY 2016 is **6.7 billion JPY (approx. USD 56 million)** in total by FY2018

※Budget will be fixed after approval by the Parliament

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 REDD+ Model Projects by MOEJ



【Background】

- Deforestation and forest degradation in developing countries
- 17 demonstration feasibility studies from 2011 to 2014

【Expected outcome】

- Participatory monitoring of illegal logging, disaster prevention, and forest restoration
- Provision of alternative livelihoods



《 Projects outline 》

【The budget for FY 2016】80 million JPY (approx. USD 0.67 million)

Government of Japan

Finance part of the cost

International consortiums (which include Japanese entities)

Deliver JCM credits issued *

* At least half or ratio of financial support to project cost of JCM credits issued are expected to be delivered to the government of Japan except the amount which is allocated to the partner country based on its legislation.

※ These projects may be implemented in cooperation with other organizations such as JICA

※ REDD+ (Reducing Emissions from Deforestation and Forest Degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries)

Purpose

Implement activities for REDD+ and seek to acquire JCM credits for achievement of Japan's GHG emission reduction target

Project budget and implementation term

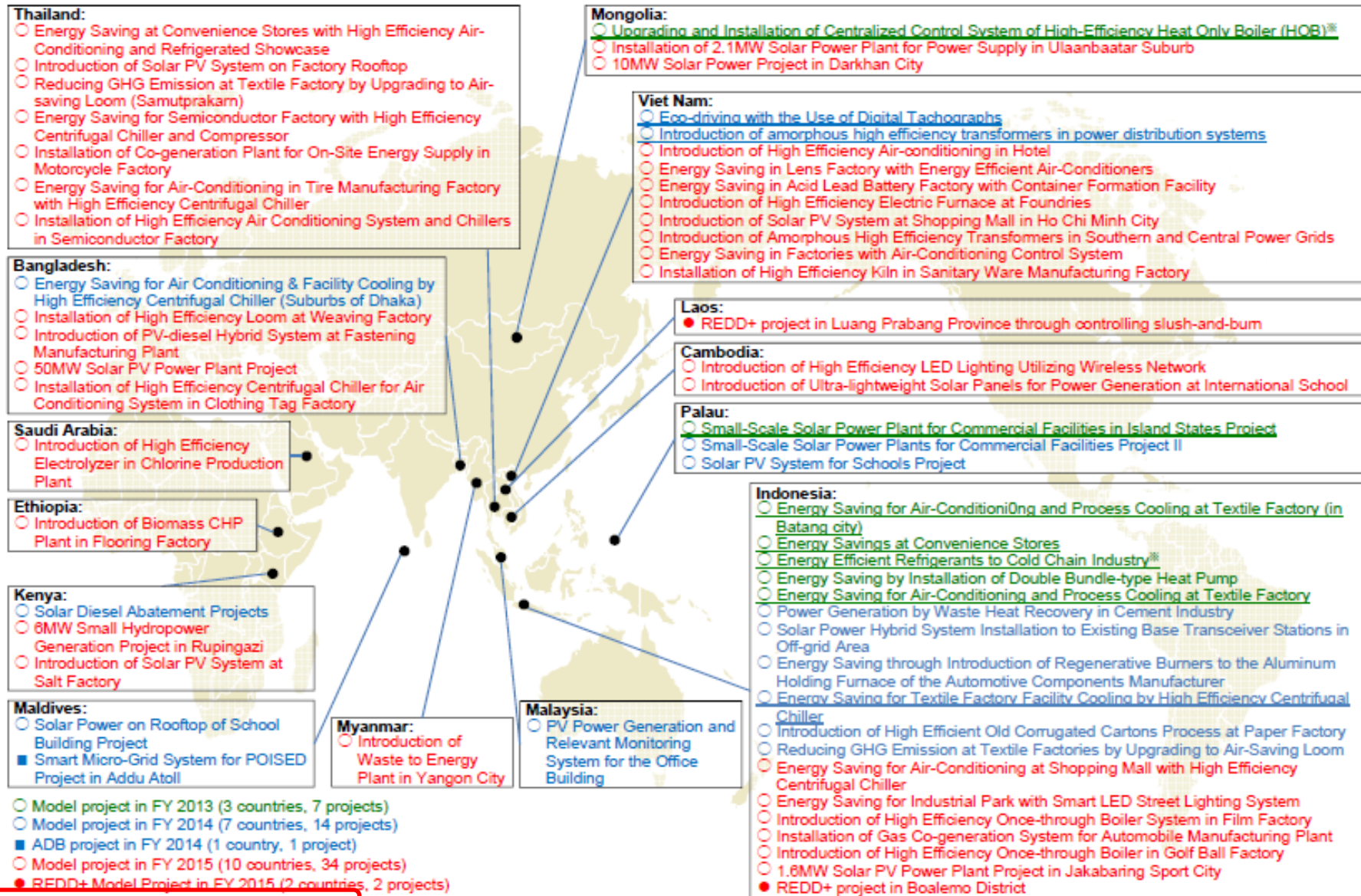
Up to 40 million JPY/year (fixed)

Eligible Companies

Japanese corporation (the representative of international consortiums)

JCM Financing programs by MOEJ (FY2013/2014/2015)

as of Jun 10, 2016



Total 14 countries, 58 projects

The underlined projects have been registered as the JCM projects (11 projects)

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

Feasibility Studies

Objective

Elaborating investment plan on JCM projects, developing MRV methodologies and investigating feasibility on potential JCM projects,

Type of studies

JCM Project Planning Study (PS)

To develop a JCM Project in the next fiscal year

JCM Feasibility Study (FS)

To survey feasibility of potential JCM projects

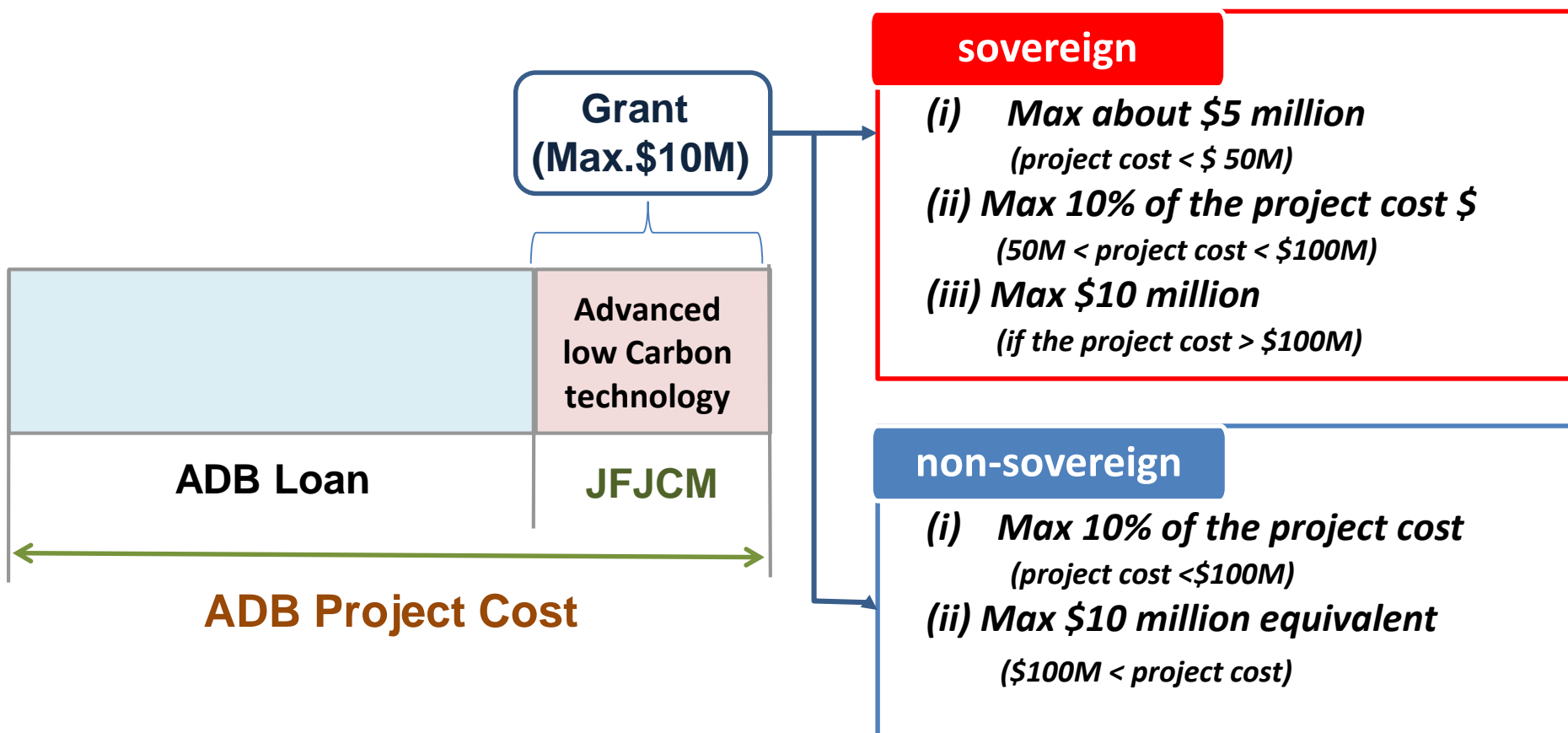
FS for City to City Collaboration Project

To survey feasibility of potential large scale JCM projects including city level collaboration

Reports

Available at GEC (Global Environment Centre Foundation) website <URL: <http://gec.jp> >

- JFJCM was established and announced by MOEJ and ADB on 25 June 2014.
- The JFJCM provides financial incentives for adoption of advanced low-carbon technologies in ADB-financed projects.



Solar Power Project in Maldives

- Additional financing of \$5M Grant to Addu atoll subproject
- Grant approved by ADB in March, 2015
- Install advanced battery system and energy management system (EMS) for smart micro-grid system

Distribution Project for CHP in Mongolia

- Fund allocation approved by MOEJ in November, 2015
- Install energy efficient transformers



Regional-Capacity Development Technical Assistance

- Supporting the Adoption of Low-Carbon Technologies in Developing Member Countries

JCM Demonstration Projects (Budget for FY2016: 2.4 billion yen)

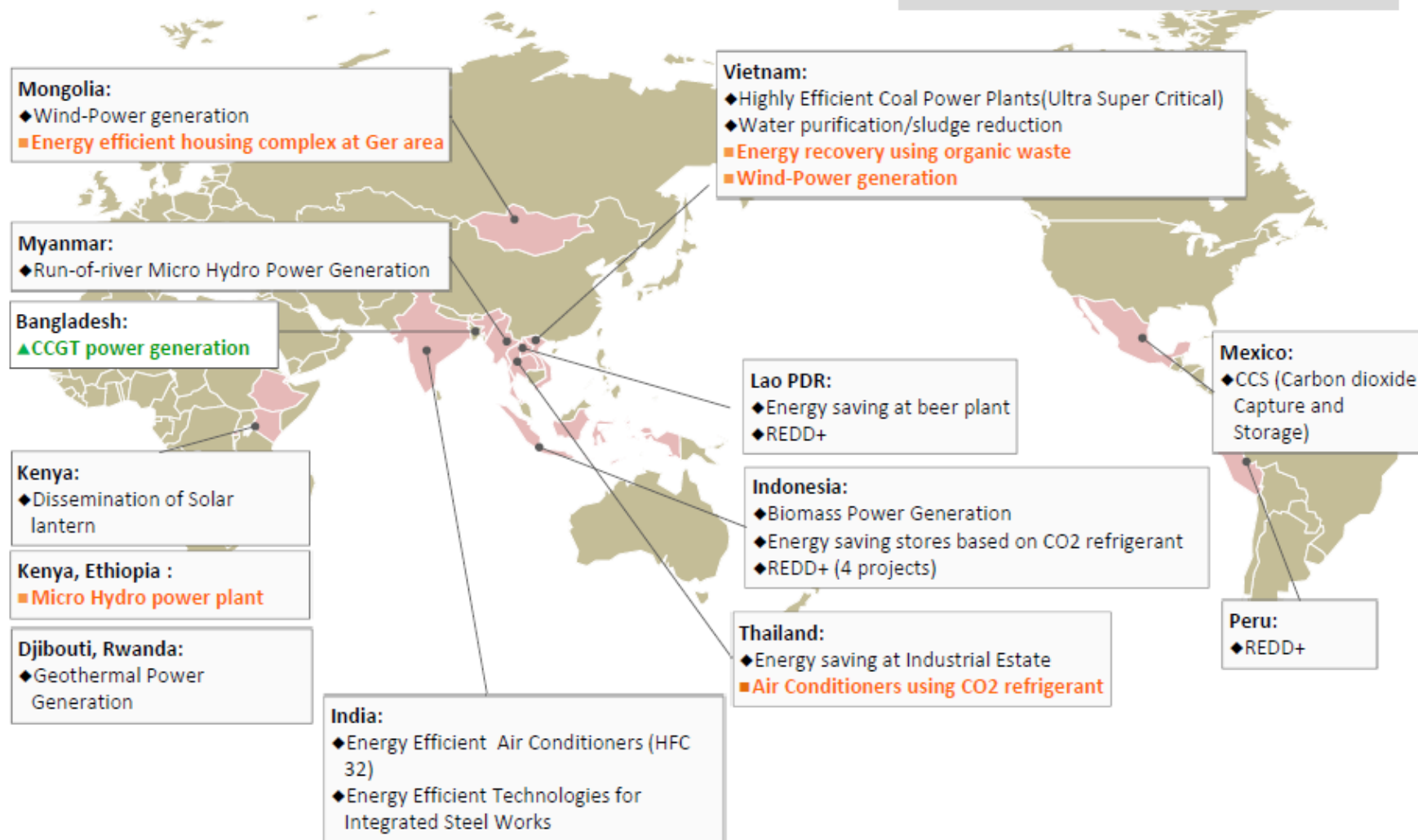
- JCM Demonstration Projects are implemented by NEDO (New Energy and Industrial Technology Development Organization), which supports the project costs necessary to verify the amount of GHG emission reduction in line with JCM rules and guidelines.
- Coverage of project cost: Cost of the JCM Demonstration Projects necessary for MRV
e.g. Cost of design, machines, materials, labor, travel, etc.
- Eligibility for the JCM Demonstration Projects:
 - Concrete Projects to demonstrate the effectiveness of leading Japanese technologies and/or products installed and operated in the projects, and the amount of their GHG emission reduction with MRV methodology by actual operation
 - Project Participants consist of entities from both countries, only the Japanese entities can apply for the JCM Demonstration projects. The projects shall be completed within 3 years.

JCM Feasibility Study (FS)

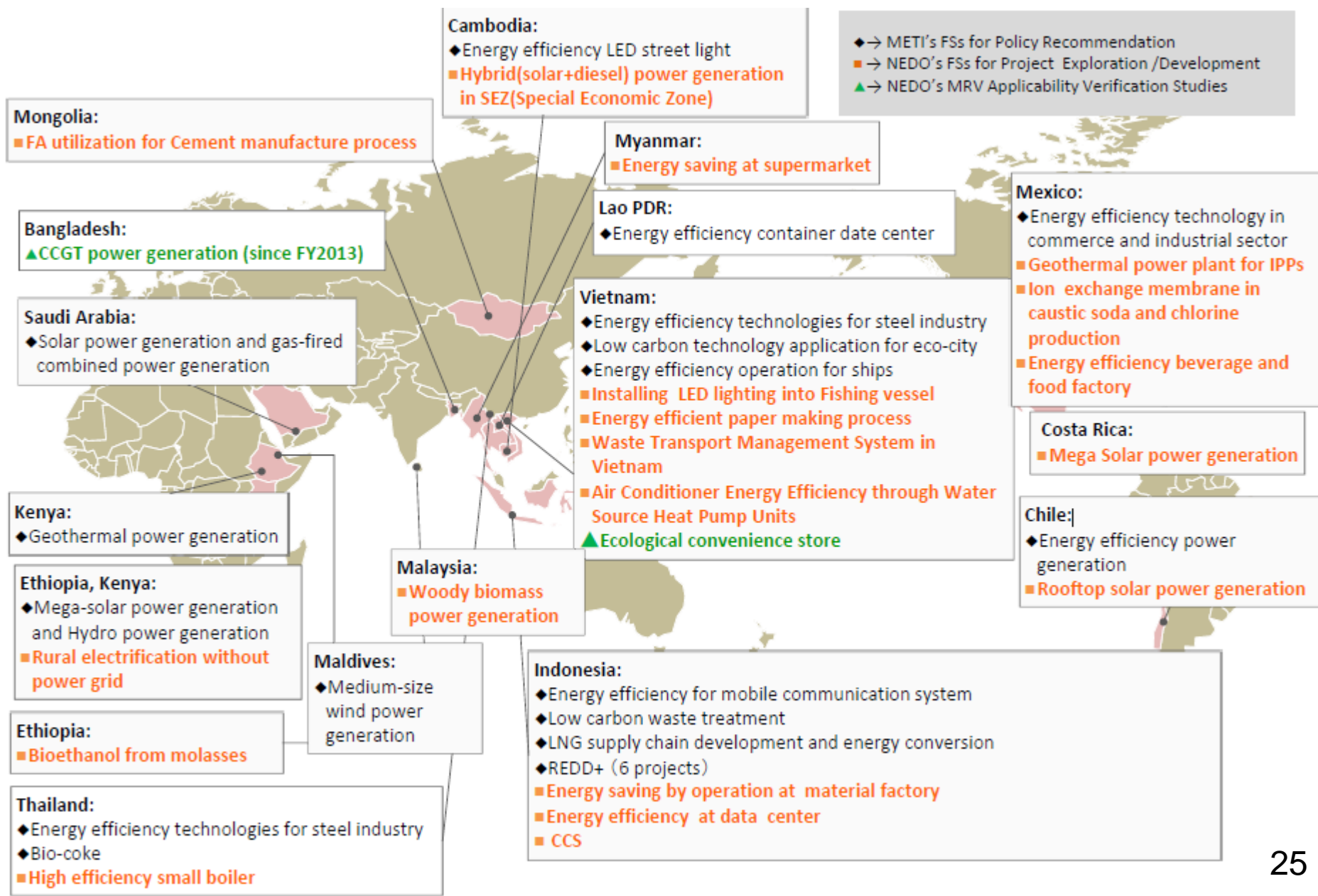
- The study to promote potential JCM projects and to survey their feasibility as well as to check the practicality of the MRV methodology.

JCM Feasibility Studies, MRV Applicability and Verification Studies by METI & NEDO in FY2013

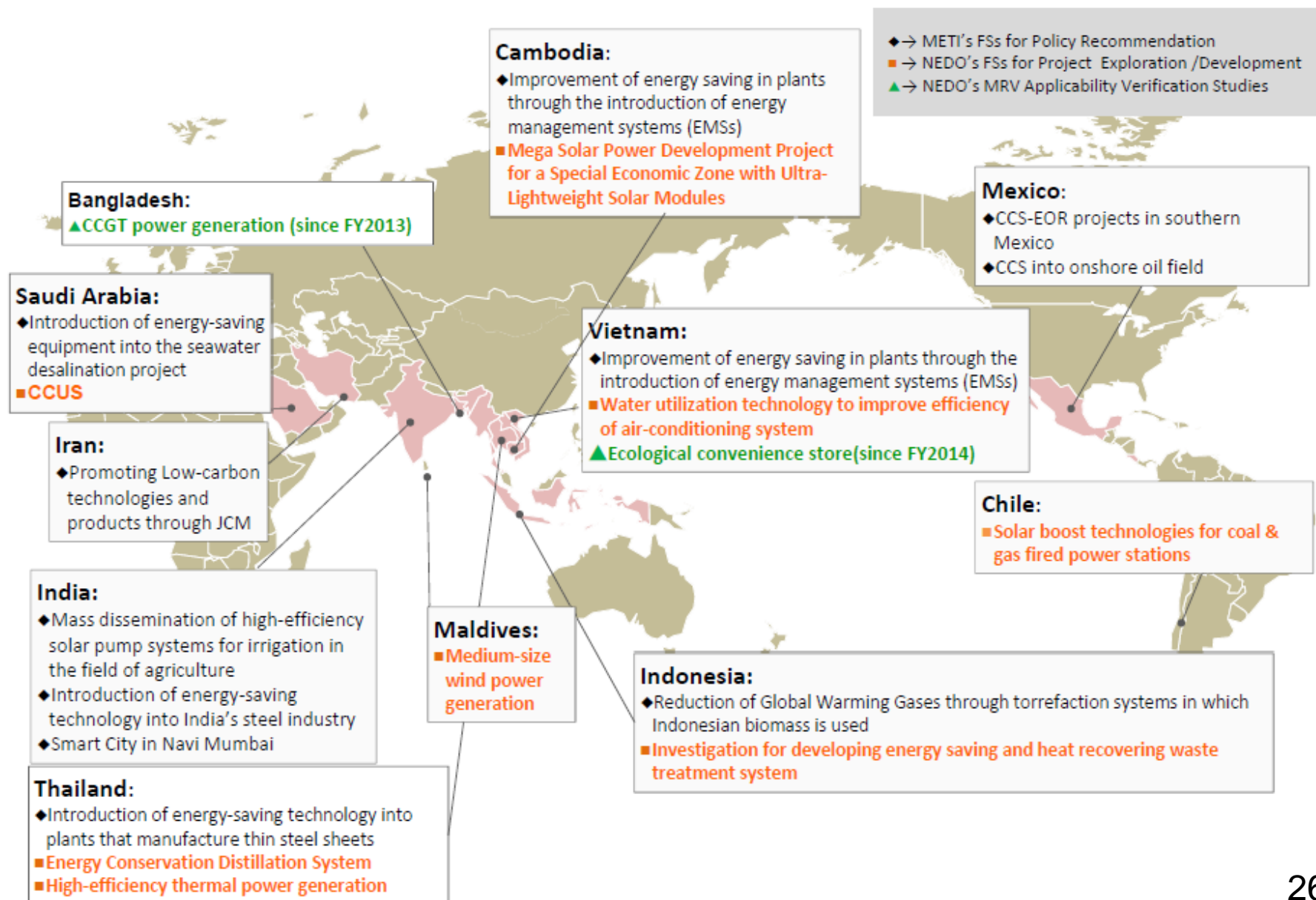
- ◆→ METI's FSs for Policy Recommendation
- NEDO's FSs for Project Exploration /Development
- ▲→ NEDO's MRV Applicability Verification Studies



JCM Feasibility Studies, MRV Applicability and Verification Studies by METI & NEDO in FY2014



JCM Feasibility Studies, MRV Applicability and Verification Studies by METI & NEDO in FY2015



JCM Demonstration Projects by NEDO in FY2015

Mongolia:

- **High efficiency and low loss power transmission and distribution system (Hitachi)** ※since FY2013
- Reduction of transmission loss by introduction of LL-ACSR/SA (Low Electrical Power Loss Aluminum Conductors, Aluminum-Clad Steel Reinforced).

Vietnam:

- **Energy saving by inverter air conditioner optimum operation at National Hospital (Mitsubishi Electric)** ※since FY2013
- Installing inverter room air conditioners (RACs) and Energy Management System (EMS) to optimize operation of multiple inverter RACs in national hospitals.
- **Energy saving by BEMS optimum operation at Hotel (Hibiya Engineering)** ※since FY2013
- Integrating highly-proven energy saving technologies for hot water supply and lighting combined with energy management system to optimize these technologies.
- **Energy saving paper making process (Marubeni)** ※since FY2014
- Introduction of high efficient and environment friendly machines to alter old papermaking process in paper production line.
- **Energy Saving and Work Efficiency Improvement Project by special LED Equipment with new technology, COB (Stanley Electric)** ※since FY2015
- Introducing the special LED lighting equipment with new technology, COB module as a source of light into the fishing vessels currently equipped with the metal halide light and incandescent lamps.

Lao PDR:

- **Lao PDR Energy efficient data center (LEED) (Toyota Tsusho Corporation, Internet Initiative Japan)** ※since 2014
- Utilizing high energy efficient container-type data centers, related technologies will be demonstrated under Lao PDR environment, such as unstable power supply, hot and humid atmosphere etc.

Indonesia:

- **Energy saving by optimum operation at Oil factory (Yokogawa Electric)** ※since FY2013
- Multivariable model predictive control (MMPC), a kind of advanced optimization control at oil refinery plants, is added on existing DCS (Distributed Control System) and realizes the automatic operation control for the optimum production.
- **Utility facility operation optimization technology into Oil factory (Yokogawa)** ※since FY2013
- The project achieves energy conservation in boilers, through operation optimization by applying Utility Facility Operation Optimization Technology.
- **Thin-Film solar power plant (Sharp)** ※since FY2013
- Installing Thin-film PV and verifying its GHG emission reduction effect by the remote auto-monitoring system which complement the monitoring lacking data, with the minimum equipment composition.
- **The low carbonization of mobile communication's BTS (Base Transceiver Station) by the introduction of "TRIBRID system" (KDDI)** ※since FY2015
- Energy management system for BTS "TRIBRID system" will be installed at 22 locations in Off-grid and Poor-grid area.

Total: 10 projects (4 countries)
Underlined Project in Vietnam is registered as a JCM project.

OECC

JCM Development cooperation activities by the OECC

Program of the Ministry of the Environment, Japan (MOEJ)



Conduct technology needs assessment: Conduct market survey on low carbon technology and product to reduce CO₂, and design available financial scheme.

Provides technology diagnosis by experts: In cooperation with energy management solution companies, 1) conduct energy diagnosis for hotels, shopping malls and factories, and 2) provide recommendation for possible improvements. Also 3) Estimate total investment cost of technology including O&M.

Encourage match-making between technology owners and local enterprises: e.g. Listen to the project ideas and support finding the best matching solution depending on the needs.

Provide Joint Crediting Mechanism consulting: e.g. 1) Disseminate the information on the registered methodology and the public input on the website. 2) Analyze the implementing studies to consolidate the JCM to be a leading carbon market mechanism globally. 3) Support preparing for the Financing Programmes for JCM Model projects.

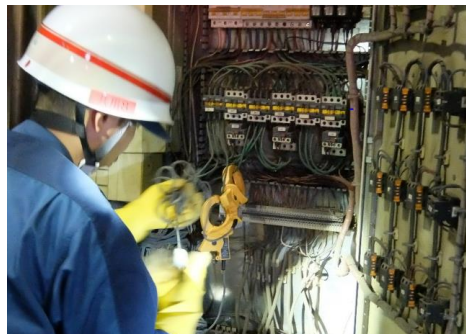
Approach

Technology and
Corporate surveys

Formation support of JCM
projects

Workshop and Japan
study tour

JCM
Project



JCM Projects OECC supported (Case study)

Mongolia



Installation of 2.1MW Solar Power Plant for Power Supply in Ulaanbaatar Suburb

Viet Nam



Introduction of amorphous high efficiency transformers in power distribution systems

Bangladesh



Installation of High Efficiency Loom at Weaving Factory

Bangladesh



Installation of High Efficiency Centrifugal Chiller for Air Conditioning System in Clothing Tag Factory

Cambodia



Introduction of Ultra-lightweight Solar Panels for Power Generation at International School

Viet Nam



Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grids

Thank you!

Info. JCM Website

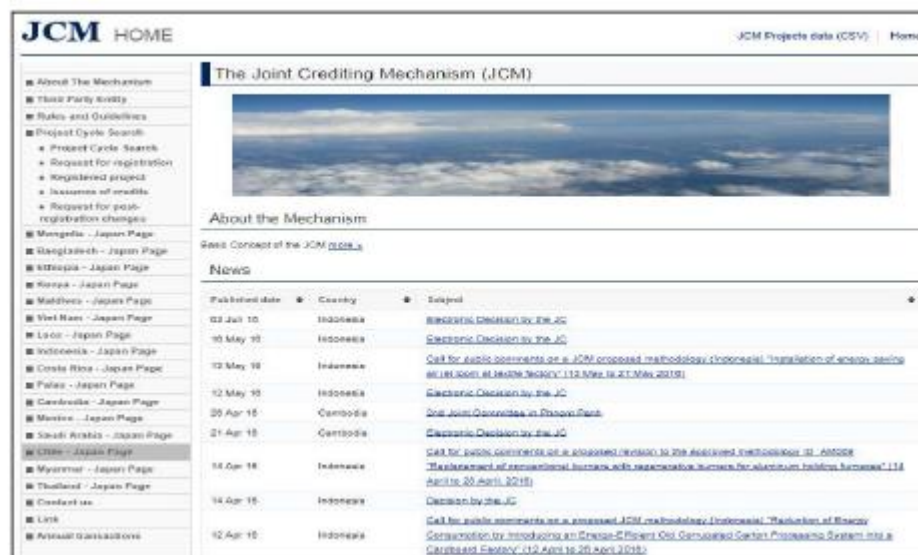
URL: <https://www.jcm.go.jp/>

Contents

- General information page
- Individual JCM Partner countries-
Japan page

Function

- **Information sharing** to the public, e.g.,
 - the JC decisions,
 - rules and guidelines,
 - methodologies,
 - projects,
 - call for public inputs/comments,
 - status of TPEs, etc.
- **Internal information sharing** for the JC members, e.g.,
 - File sharing for electric decisions by the JC



Info. Registered JCM Projects - 1/2

No.	Country	Project Title	General description of project
MN001	Mongolia	Installation of High-Efficiency Heat Only Boilers in 118th School of Ulaanbaatar City Project	Introducing high-efficiency HOBs to fulfill the demand of new heat facilities for the school buildings. Optimizing boiler operation through the implementation of operation management and technical guidance.
MN002	Mongolia	Centralization of Heat Supply System by Installation of High-Efficiency Heat Only Boilers in Bornuur soum Project	Introducing high-efficiency HOBs to fulfill the demand for heat supply system in the public buildings. Optimizing boiler operation through the implementation of operation management and technical guidance.
VN001	Viet Nam	Eco-Driving by Utilizing Digital Tachograph System	Improving transportation fuel efficiency by installing digital tachographs, in which the quantity of fuel consumption and running distance are continuously analyzed and provide feedbacks and advices to the drivers based on the analyzed data.
VN002	Viet Nam	Promotion of green hospitals by improving efficiency / environment in national hospitals in Vietnam	Installing inverter room air conditioners (RACs) and Energy Management System (EMS) to optimize operation of multiple inverter RACs in national hospitals
VN003	Viet Nam	Low carbon hotel project in Vietnam: Improving the energy efficiency of commercial buildings by utilization of high efficiency equipment	Installing high-efficiency equipment of hot water supply, air conditioning management system and LED lighting for improving the energy efficiency of hotels
VN004	Viet Nam	Introduction of amorphous high efficiency transformers in power distribution systems in the southern part of Viet Nam	Introducing 1,618 amorphous high efficiency transformers which reduce transmission and distribution loss in the power distribution system of southern Vietnam.
ID001	Indonesia	Energy Saving for Air-Conditioning and Process Cooling by Introducing High-efficiency Centrifugal Chiller	Improving energy saving for air-conditioning and process cooling by introducing high-efficiency centrifugal chiller equipped with high-performance economizer cycle, and super-cooling refrigerant cycle in a textile factory.

Info. Registered JCM Projects - 2/2

No.	Country	Project Title	General description of project
ID002	Indonesia	Project of Introducing High Efficiency Refrigerator to a Food Industry Cold Storage in Indonesia	Introducing advanced energy efficient cooling system using natural refrigerant in the food industry cold storage.
ID003	Indonesia	Project of Introducing High Efficiency Refrigerator to a Frozen Food Processing Plant in Indonesia	Introducing advanced energy efficient cooling system using natural refrigerant in the frozen food processing plant.
ID004	Indonesia	Energy Saving for Air-Conditioning at Textile Factory by Introducing High-efficiency Centrifugal Chiller in Karawang, West Java	Improving energy saving for air-conditioning and process cooling by introducing high-efficiency centrifugal chiller equipped with high-performance economizer cycle, and super-cooling refrigerant cycle in a textile factory.
ID005	Indonesia	Energy Saving for Air-Conditioning at Textile Factory by Introducing High-efficiency Centrifugal Chiller in Batang, Central Java (Phase 2)	Improving energy saving for air-conditioning and process cooling by introducing high-efficiency centrifugal chiller equipped with high-performance economizer cycle, and super-cooling refrigerant cycle in a textile factory.
ID006	Indonesia	Installation of Inverter-type Air Conditioning System, LED Lighting and Separate Type Fridge Freezer Showcase to Grocery Stores in Republic of Indonesia	Introducing high-efficiency facilities to the grocery stores for saving energy as below; <ul style="list-style-type: none"> - Inverter-type air conditioner - LED lighting - Fridge freezer showcase with natural refrigerant
PW001	Palau	Small Scale Solar Power Plants for Commercial Facilities in Island States	Installing high quality solar cell modules with high conversion efficiency with a monitoring system which realizes appropriate operation and management.

Info. Approved Methodologies - 1/3

No.	Country	Sectoral Scope	Methodology Title	GHG Emission Reduction Measures
MN_AM001	Mongolia	Energy distribution	Installation of energy-saving transmission lines in the Mongolian Grid	Reduction of transmission loss by introduction of LL-ACSR/SA (Low Electrical Power Loss Aluminum Conductors, Aluminum-Clad Steel Reinforced).
MN_AM002	Mongolia	Energy industries	Replacement and Installation of High Efficiency Heat Only Boiler (HOB) for Hot Water Supply Systems	Installation of new HOB for hot water supply system and the replacement of existing coal-fired HOB. The boiler efficiency of the reference HOB is typically lower than that of the project HOB. Therefore, the project activity leads to the reduction of coal consumption, resulting in lower emission of GHGs as well as air pollutants.
BD_AM001	Bangladesh	Energy demand	Energy Saving by Introduction of High Efficiency Centrifugal Chiller	Saving energy by introducing high efficiency centrifugal chiller for the target factory, commerce facilities etc.
ET_AM001	Ethiopia	Energy industries	Electrification of communities using Micro hydropower generation	Displacement of electricity using diesel fuel and/or lighting using kerosene by installation and operation of the micro hydropower generation unit.
KE_AM001	Kenya	Energy industries	Electrification of communities using Micro hydropower generation	Displacement of electricity using diesel fuel and/or lighting using kerosene by installation and operation of the micro hydropower generation unit.
MV_AM001	Maldives	Energy industries	Displacement of Grid and Captive Genset Electricity by Solar PV System	Displacement of grid electricity and/or captive electricity using diesel fuel as a power source by installation and operation of the solar PV system(s)
VN_AM001	Viet Nam	Transport	Transportation energy efficiency activities by installing digital tachograph systems	Improvement of driving efficiency by installation of digital tachograph system to freight vehicle fleets providing to the drivers a real-time feedback against inefficient driving.
VN_AM002	Viet Nam	Energy demand	Introduction of Room Air Conditioners Equipped with Inverters	Energy saving achieved by introduction of RACs equipped with inverters.

Info. Approved Methodologies - 2/3

No.	Country	Sectoral Scope	Methodology Title	GHG Emission Reduction Measures
VN_AM003	Viet Nam	Energy demand	Improving the energy efficiency of commercial buildings by utilization of high efficiency equipment	Reduction of electricity and fossil fuel consumed by existing facilities is achieved by replacing or substituting these facilities with high efficiency equipment.
VN_AM004	Viet Nam	Waste handling and disposal	Anaerobic digestion of organic waste for biogas utilization within wholesale markets	Avoid the emissions of methane to the atmosphere from organic waste that have been left to decay anaerobically at a solid waste disposal site and to introduce renewable energy technologies that supply biogas that displaces fossil fuel use.
VN_AM005	Viet Nam	Energy distribution	Installation of energy efficient transformers in a power distribution grid	Installation of energy efficient transformers (transformers with amorphous metal core) in a power distribution grid to reduce no-load losses by transformers, which leads to reduction of losses for grid electricity
ID_AM001	Indonesia	Energy industries	Power Generation by Waste Heat Recovery in Cement Industry	Waste heat recovery (WHR) system generates electricity through waste heat recovered from cement production facility. Electricity generated from the WHR system replaces grid electricity resulting in GHG emission reductions of the connected grid system.
ID_AM002	Indonesia	Energy demand	Energy Saving by Introduction of High Efficiency Centrifugal Chiller	Saving energy by introducing high efficiency centrifugal chiller for the target factory, commerce facilities etc.
ID_AM003	Indonesia	Energy demand	Installation of Energy-efficient Refrigerators Using Natural Refrigerant at Food Industry Cold Storage and Frozen Food Processing Plant	Saving energy by introducing high efficiency refrigerators to the food industry cold storage and frozen food processing plants.
ID_AM004	Indonesia	Energy demand	Installation of Inverter-Type Air Conditioning System for Cooling for Grocery Store	Saving energy by introducing inverter-type air conditioning system for cooling for grocery store.

Info. Approved Methodologies - 3/3

No.	Country	Sectoral Scope	Methodology Title	GHG Emission Reduction Measures
ID_ AM005	Indonesia	Energy demand	Installation of LED Lighting for Grocery Store	Saving energy by introducing LED (Light Emitting Diode) lighting for grocery store.
ID_ AM006	Indonesia	Energy demand	GHG emission reductions through optimization of refinery plant operation in Indonesia	Introduction of plant optimization control systems (APC) that reduce energy consumption in the hydrogen production unit (HPU) and hydro cracking unit (HCU) at a refinery plant.
ID_ AM007	Indonesia	Energy demand	GHG emission reductions through optimization of boiler operation in Indonesia	The project achieves energy conservation in boilers, through operation optimization by applying Utility Facility Operation Optimization Technology.
ID_ AM008	Indonesia	Energy demand	Installation of a separate type fridge-freezer showcase by using natural refrigerant for grocery store to reduce air conditioning load inside the store	Saving total energy of in-store showcase and air conditioning system by introducing a separate type natural refrigerant fridge-freezer showcase for grocery store, which leads to GHG emission reductions, through the reduction of air conditioning electricity load demand by not releasing waste heat inside the store.
ID_ AM009	Indonesia	Energy demand	Replacement of conventional burners with regenerative burners for aluminum holding furnaces	By replacing conventional burners with regenerative burners for aluminum holding furnaces, consumption of natural gas is reduced, which leads to the reduction of GHG emissions.
ID_ AM010	Indonesia	Energy demand	Introducing double-bundle modular electric heat pumps to a new building	The project contributes to GHG emission reductions at a new building, by reducing electricity and oil consumption with efficient double-bundle modular electric heat pumps where heating/cooling energy is simultaneously generated.
PW_ AM001	Palau	Energy industries	Displacement of Grid and Captive Genset Electricity by a Small-scale Solar PV System	Displacement of grid electricity and/or electricity using diesel fuel as a power source by installation and operation of the solar PV system(s).
KH_ AM001	Cambodia	Energy demand	Installation of LED street lighting system with wireless network control	The street lighting system that introduces LED lamps and lighting control devices with utilization of wireless network is installed on streets to save electricity consumption.