

Introduction to the Joint Crediting Mechanism (JCM)

JCM Workshop: Policy on Low Carbon Economy and the Role of Bilateral Mechanism in Thailand

Bangkok, Thailand

25 January 2016

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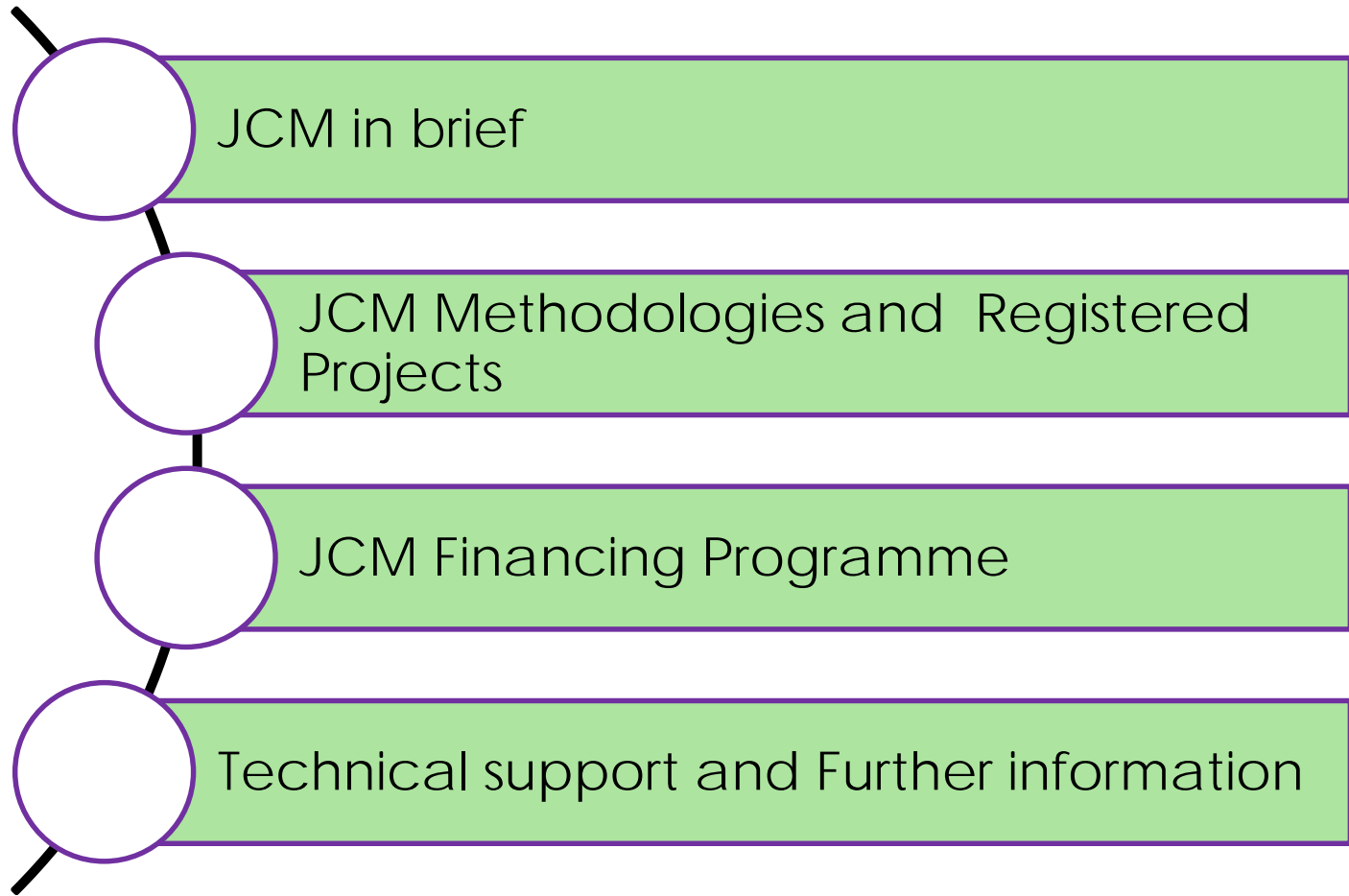
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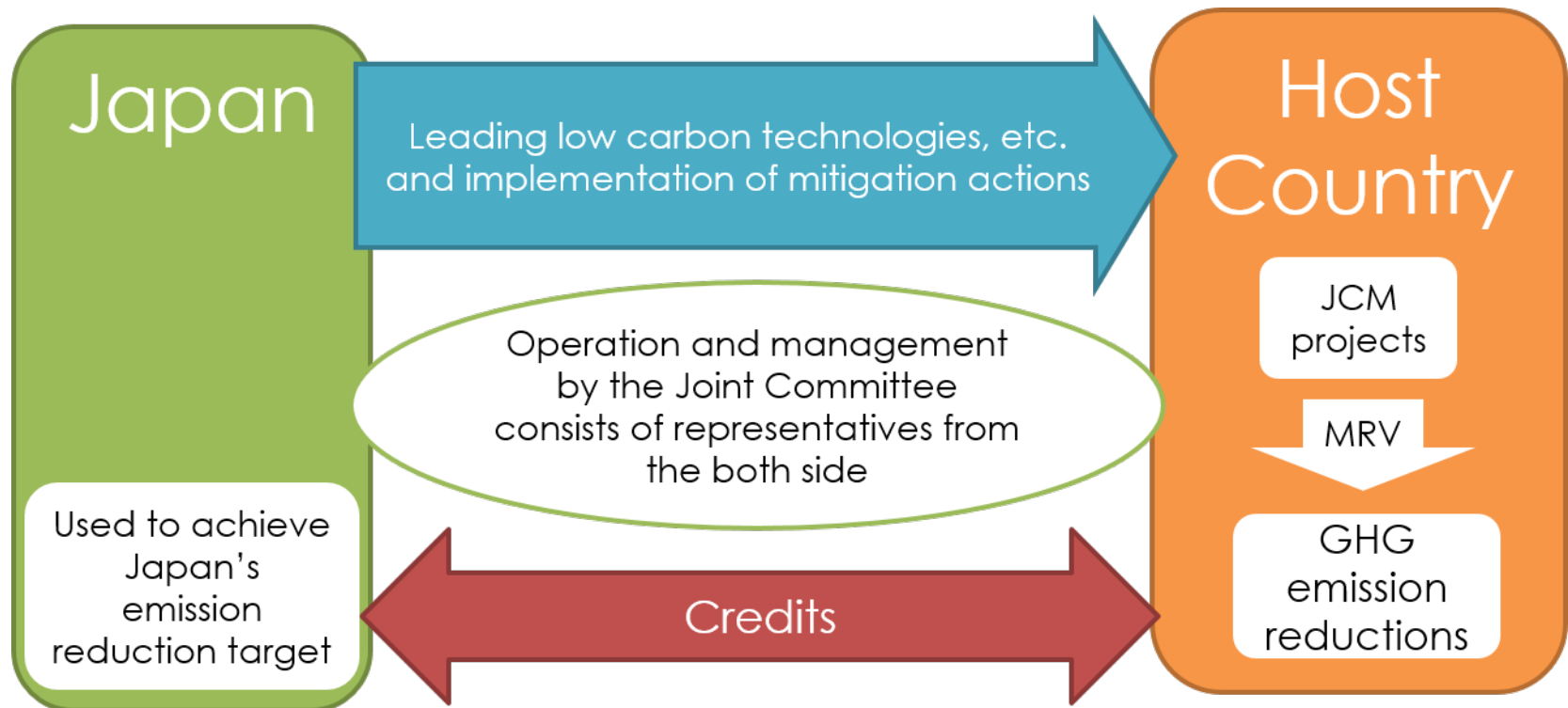
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Presentation themes

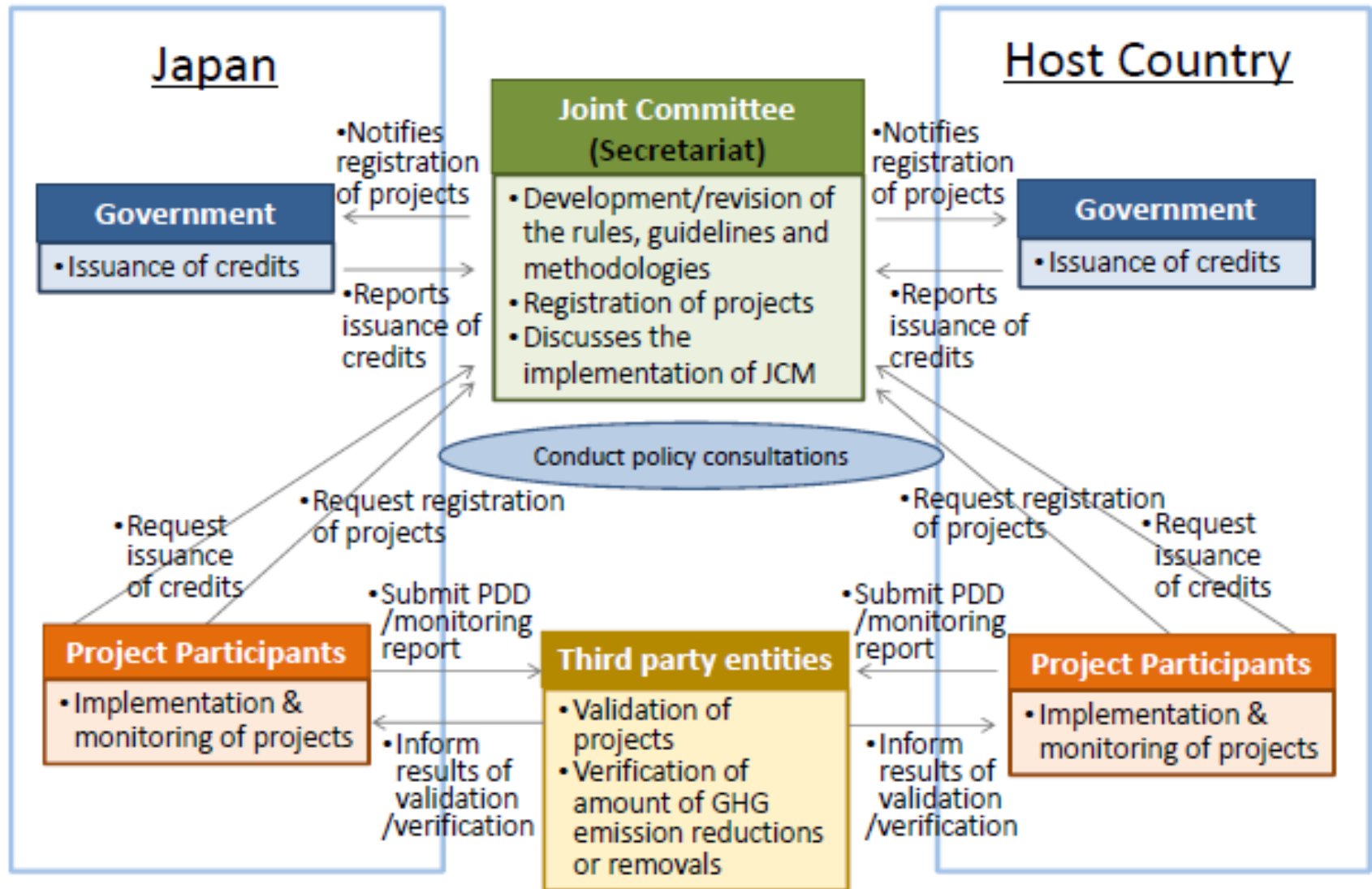


The Joint Crediting Mechanism (JCM)

- ✦ Implement jointly by both country
- ✦ Promote to diffuse leading low carbon technologies, products, etc.
- ✦ Evaluating GHG emission reductions by measurement, reporting and verification (MRV)



Scheme of the JCM



JCM Progress to date

- **JCM Partner Countries (16 Countries)**
 - Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar and **Thailand!**
- **8 Registered Projects**
 - Energy efficiency (4), Renewable energy (1), Transport (1)
 - Indonesia (3), Mongolia (2), Palau (1), and Viet Nam (2)
- **19 Approved Methodologies**
 - Energy efficiency (16), Renewable energy (1), Transport (1), Waste to energy (1)
 - Indonesia (11), Mongolia (2) , Palau (1) , Maldives (1), Vietnam (4)
- **Establishment of JCM website**
 - <https://www.jcm.go.jp/>
- **Establishment of JCM registry**
 - Issuance of JCM credits

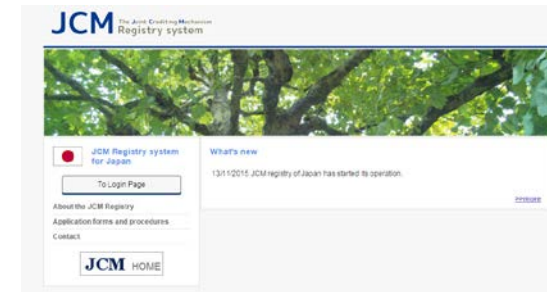
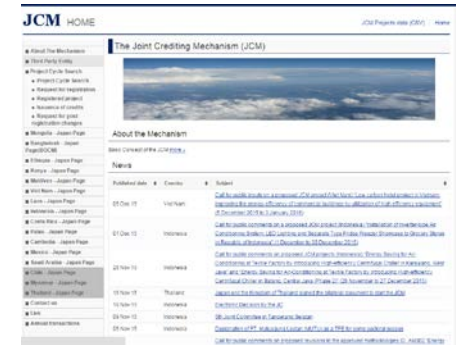


JCM Partner Countries



JCM Operation to date

- Establishment & Operation of the Joint Committee (JC)
 - 13 countries have organized the JC and adopted rules and guidelines, approved methodology, registered projects
- Establishment & Operation of the website
 - JCM web page has launched and operated
(<https://www.jcm.go.jp/>)
 - Some partner countries have established its own website (Indonesia, Vietnam, Bangladesh, etc.)
- Establishment & Operation of the registry
 - <https://www.jcmregistry.go.jp/>
 - Operation since last Nov.

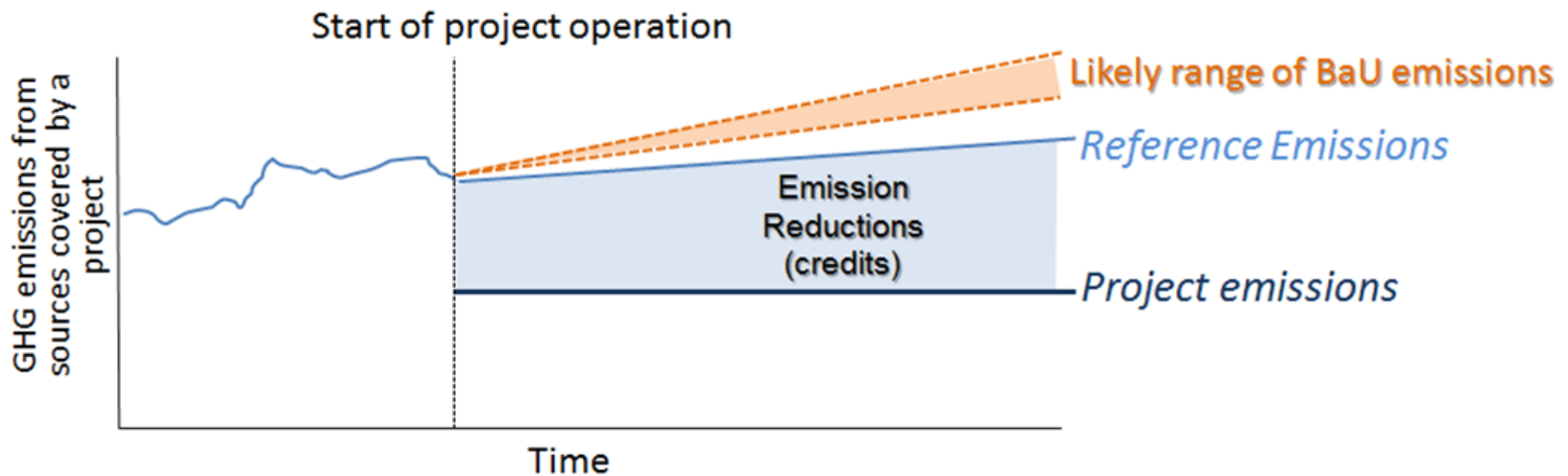


Concept of the JCM methodology

- Emission reductions = reference emissions - project emissions
- Reference emissions: calculated below business-as-usual (BaU)
- BaU emissions: emissions that would likely be emitted by constant operation of installations without the proposed JCM project.



Ensures a net decrease or avoidance of GHG emissions.



Typical Sectors for JCM Projects



- Renewable Energy



- Energy Saving (Energy Efficiency)



- Waste Handling & Disposal



- Transport

Features of the JCM Methodology

1. The JCM methodologies are designed in such a way that project participants can use them easily and verifiers can verify the data easily.
2. In order to reduce monitoring burden, default values are widely used in a conservative manner.
3. Eligibility criteria clearly defined in the methodology can reduce risks of rejection of the projects proposed by project participants.

Eligibility criteria	<ul style="list-style-type: none"> • A "check list" will allow easy determination of eligibility of a proposed project under the JCM and applicability of JCM methodologies to the project.
Data (parameter)	<ul style="list-style-type: none"> • List of parameters will allow project participants to determine what data is necessary to calculate GHG emission reductions/removals with JCM methodologies. • Default values for specific country and sector are provided beforehand.
Calculation	<ul style="list-style-type: none"> • Premade spreadsheets will allow GHG emission reductions/removals to be calculated automatically by inputting relevant values for parameters, in accordance with methodologies.

Example of Registered JCM projects

Project Type	Project Title	ERs (t-CO ₂ /y)	Registration Date	Country
Energy Efficiency	Energy Saving for Air-Conditioning and Process Cooling by Introducing High-efficiency Centrifugal Chiller	114	31-Oct-14	Indonesia
Energy Efficiency	Project of Introducing High Efficiency Refrigerator to a Frozen Food Processing Plant in Indonesia	120	29-Mar-15	Indonesia
Energy Efficiency	Project of Introducing High Efficiency Refrigerator to a Food Industry Cold Storage in Indonesia	21	29-Mar-15	Indonesia
Energy Efficiency	Promotion of green hospitals by improving efficiency / environment in national hospitals in Vietnam	515	30-Nov-15	Vietnam



Left: High-efficiency Centrifugal Chiller, Middle and Right : High Efficiency Refrigerator

Example of Registered JCM projects

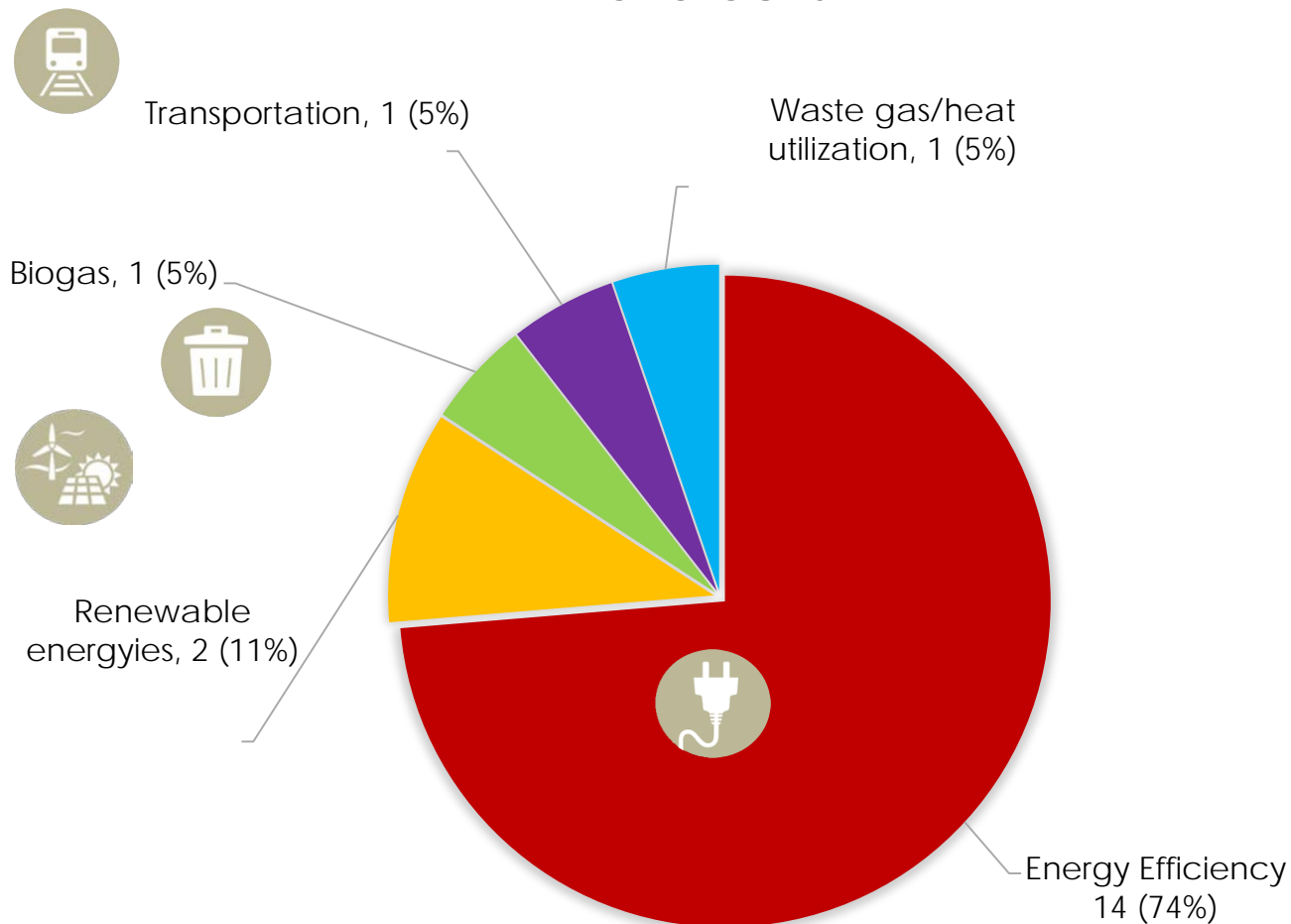
Project Type	Project Title	ERs (t-CO2/y)	Registration Date	Country
Energy Efficiency	Centralization of heat supply system by installation of high-efficiency Heat Only Boilers in Bornuur soum Project	92	30-Jun-15	Mongolia
Energy Efficiency	Installation of high-efficiency Heat Only Boilers in 118th School of Ulaanbaatar City Project	206	30-Jun-15	Mongolia
Renewable energy	Small scale solar power plants for commercial facilities in island states	227	21-Apr-15	Palau
Transport	Eco-Driving by Utilizing Digital Tachograph System	296	4-Aug-15	Vietnam

Left: High-efficiency Heat Only Boilers, Middle: Solar Power Plants and Right : Digital Tachograph System



Approved JCM Methodologies

TYPE OF TECHNOLOGIES COVERED BY THE 19 APPROVED METHODOLOGIES



Source: IGES JCM Project Database

Financing opportunities from the JCM

Leading low-carbon technologies:

- Reduce GHG emissions
- Reduce operating costs compared to conventional technologies
- Have high initial investment costs.

The JCM financing programmes:

- Fund part of initial investment costs (up to 50%) to facilitate dissemination of low-carbon technologies in developing countries
- Cover the costs of: main construction work, ancillary work, machinery and appliances, surveying and testing, facilities and administrative work.

JCM Financing Programmes

JCM Model Project

- *Budget (FY2015): 2.4 billion JPY/year (USD18 million) until FY2017*
- Objective: to finance projects (up to the half of investment costs) with high efficiency in reducing GHG emissions

Collaborative Financing Programme

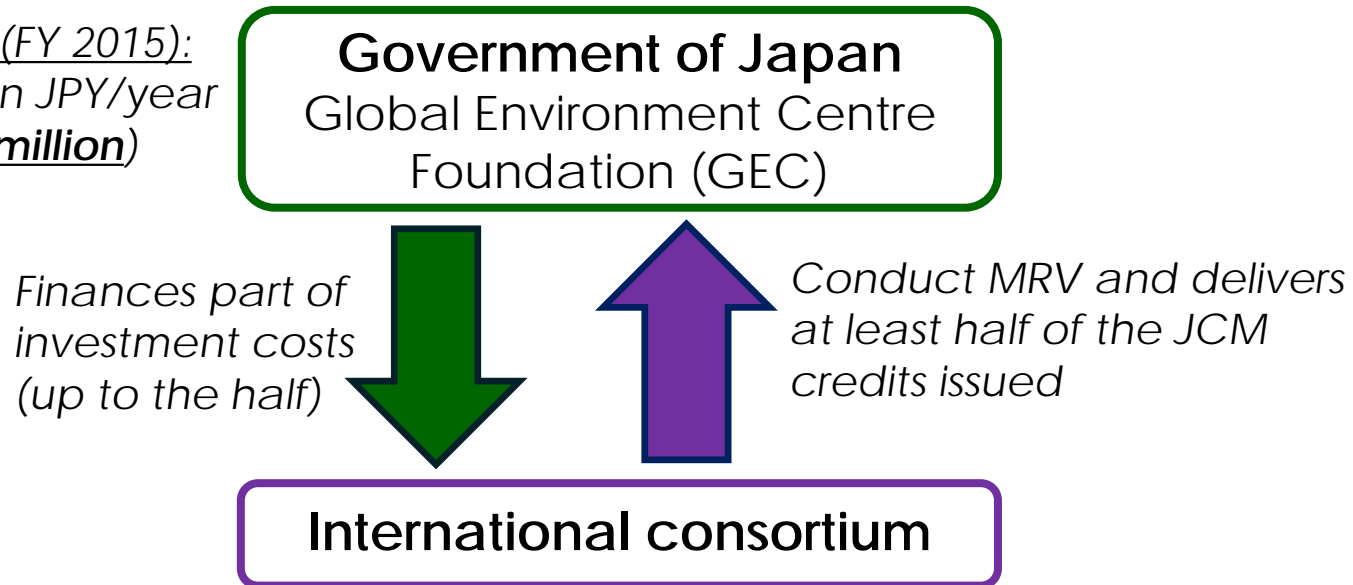
- *Budget (FY2015): 1.8 billion JPY/year (USD18 million) until FY2018*
- Objective: to finance projects (up to the half of investment costs) with high efficiency in reducing GHG emissions in collaboration with projects supported by JICA and other government financial institutes.

ADB Trust Fund

- *Budget (FY2015): 1.8 billion JPY (USD18 million)*
- Objective: to provide financial incentives for the adoption of low-carbon technologies with advanced GHG emission reduction capabilities but expensive in ADB- financed projects.

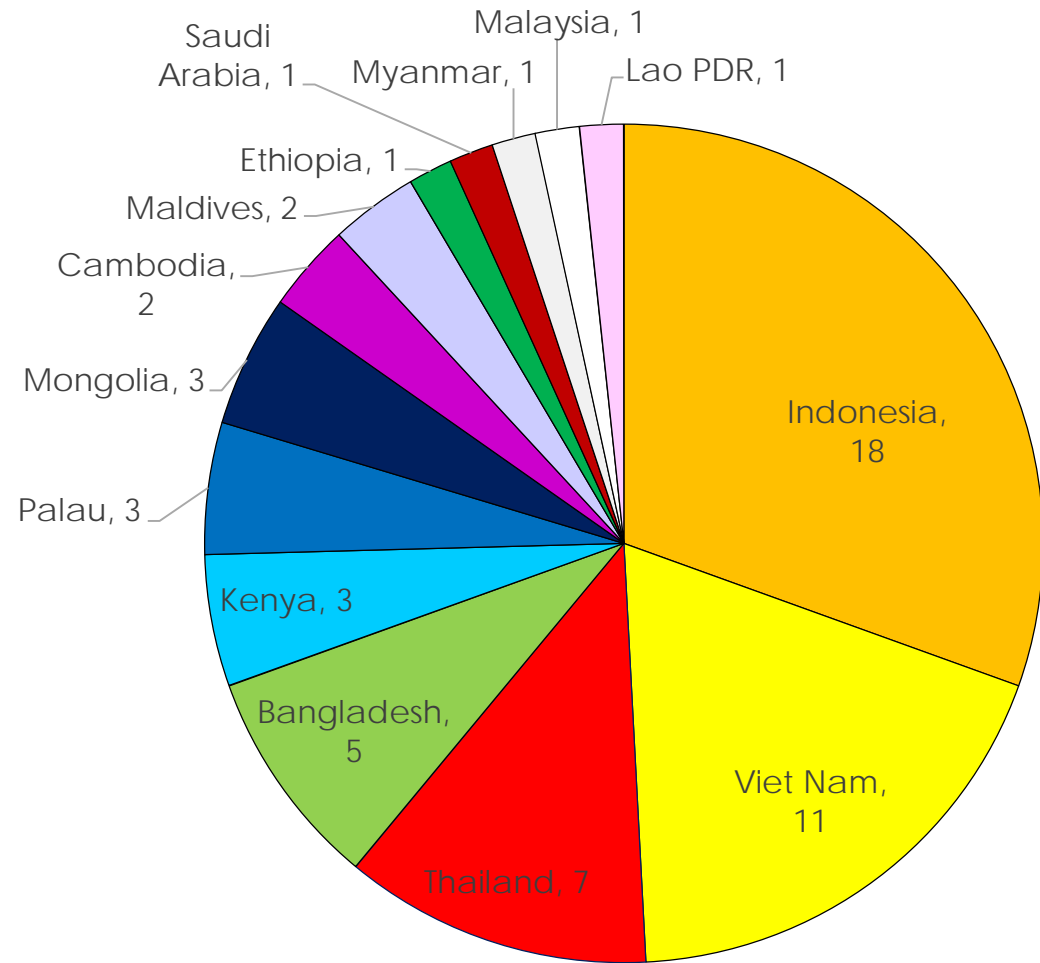
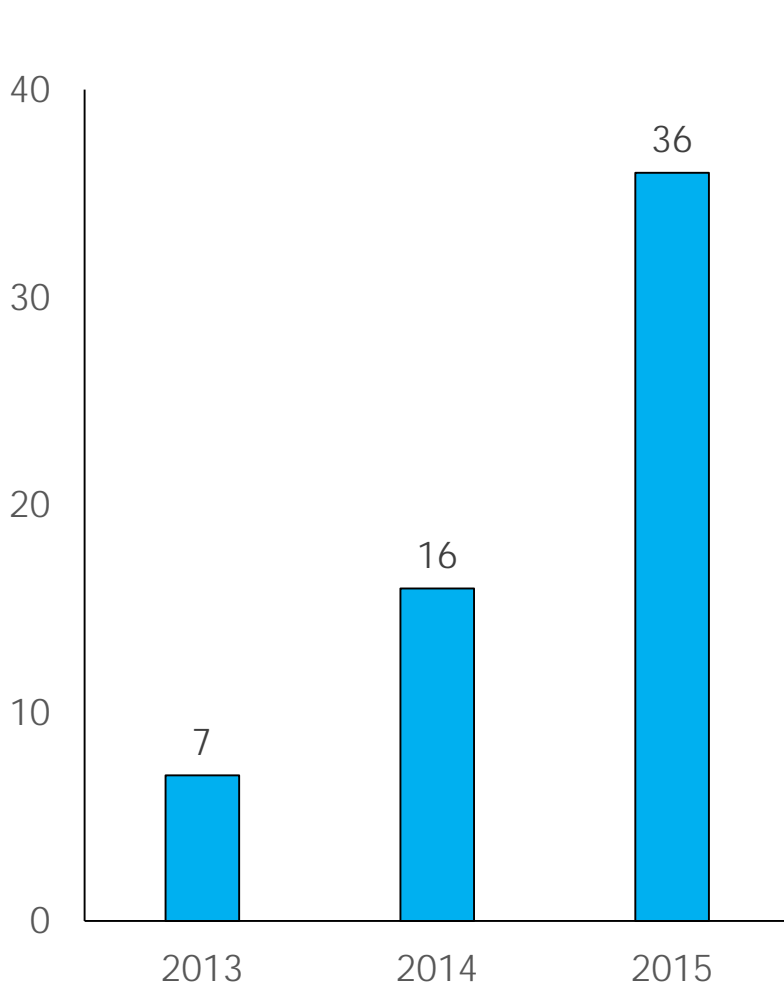
JCM Model Project

Budget (FY 2015):
2.4 billion JPY/year
(**USD20 million**)



- Applicant profile: private company, independent administrative institution, incorporated association or foundation...
- Joint application by an international consortium: a Japanese participant and a JCM partner-country participant
- Projects completion period: installations start after the adoption of the funding and must be completed within 3 years.

JCM Financing Programmes



Source: IGES JCM Project Database (Dec. 2015)

JCM Model Project and ADB JFJCM

Country	Project Title
Bangladesh (5)	<ul style="list-style-type: none"> ○ 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
Cambodia (2)	<ul style="list-style-type: none"> ○ Introduction of High Efficiency LED Lighting Utilizing Wireless Network ○ Introduction of Ultra-lightweight Solar Panels for Power Generation at International School
Indonesia (18)	<ul style="list-style-type: none"> ○ Energy Saving for Air-Conditioning and Process Cooling at Textile Factory (in Batang city) ○ Energy Savings at Convenience Stores ○ Energy Efficient Refrigerants to Cold Chain Industry ○ Energy Saving by Double Bundle-Type Heat Pump at Beverage Plant ○ 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 ○ 1.6MW Solar PV Power Plant Project in Jakabaring Sport City ○ Introduction of High Efficiency Once-through Boiler in Golf Ball Factory ● REDD+ project in Boalemo District
Ethiopia (1)	<ul style="list-style-type: none"> ○ Introduction of Biomass CHP Plant in Flooring Factory
Kenya (3)	<ul style="list-style-type: none"> ○ Solar Diesel Abatement Projects ○ 6MW Small Hydropower Generation Project in Rupingazi ○ Introduction of Solar PV System at Salt Factory

○ Model project in FY 2013 (3 countries, 7 projects) ○ Model project in FY 2015 (7 countries, 18 projects)
 ○ Model project in FY 2014 (7 countries, 15 projects) ● REDD+ Model Project in FY 2015 (2 countries, 2 projects)
 ■ ADB JFJCM project in FY 2014 (1 country, 1 project) projects

Total 14 countries, 59 projects

Underlined projects have been registered as JCM projects

JCM Model Project and ADB JFJCM

Country	Project Title
Laos (1)	● REDD+ project in Luang Prabang Province through controlling slash-and-burn
Malaysia (1)	○ PV power generation and relevant monitoring system for the office building
Maldives (2)	○ Solar Power on Rooftop of School Building Project ■ Smart Micro-Grid System for POISED Project in Addu Atoll
Mongolia (3)	○ <u>Upgrading and Installation of Centralized Control System of High-Efficiency Heat Only Boiler (HOB)</u> ○ 10MW Solar Power Project in Darkhan City ○ Installation of 2.1MW Solar Power Plant for Power Supply in Ulaanbaatar Suburb
Myanmar (1)	○ Introduction of Waste to Energy Plant in Yangon City
Palau (3)	○ <u>Small-Scale Solar Power Plant for Commercial Facilities in Island States Project</u> ○ Small-Scale Solar Power Plants for Commercial Facilities Project II ○ Solar PV System for Schools Project
Thailand (7)	○ 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 ○ Installation of High Efficiency Air Conditioning System and Chillers in Semiconductor Factory ○ Energy Saving for Air-Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller
Vietnam (11)	○ Anaerobic Digestion of Organic Waste for Biogas Utilization at Market ○ 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 ○ Energy Saving in Factories with Air-Conditioning Control System ○ Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grids ○ Installation of High Efficiency Kiln in Sanitary Ware Manufacturing Factory ○ Introduction of High Efficiency Electric Furnace at Foundries ○ Introduction of Solar PV System at Shopping Mall in Ho Chi Minh City
Saudi Arabia (1)	○ Introduction of High Efficiency Electrolyzer in Chlorine Production Plant

○ Model project in FY 2013 (3 countries, 7 projects)

○ Model project in FY 2014 (7 countries, 15 projects)

■ ADB project in FY 2014 (1 country, 1 project)

○ Model project in FY 2015 (7 countries, 18 projects)

● REDD+ Model Project in FY 2015 (2 countries, 2 projects)

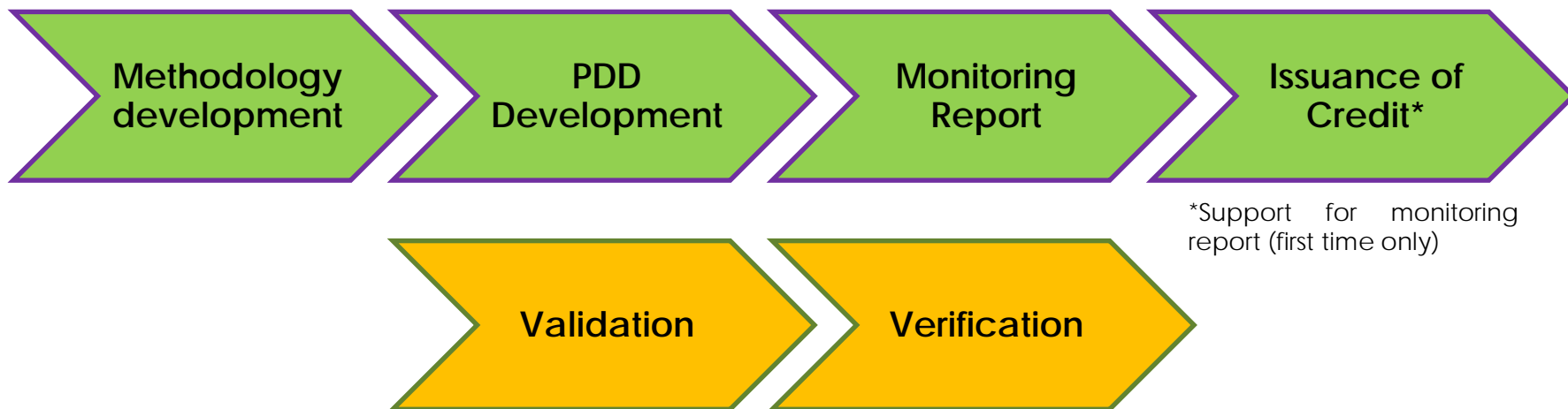
Total 14 countries, 59 projects

Underlined projects have been registered as JCM projects

JCM Model Project in Thailand

Representative Participant	Project Title	Expected GHG Emission Reductions (tCO ₂ /year)
FamilyMart Co., Ltd.	Energy Saving at Convenience Stores with High Efficiency Air-Conditioning and Refrigerated Showcase	4,970
Pacific Consultants Co., Ltd.	Introduction of Solar PV System on Factory Rooftop	776
Toray Industries, Inc.	Reducing GHG Emission at Textile Factory by Upgrading to Air-saving Loom (Samutprakarn)	646
Sony Semiconductor Corporation	Energy Saving for Semiconductor Factory with High Efficiency Centrifugal Chiller and Compressor	620
NIPPON STEEL & SUMIKIN ENGINEERING CO.,LTD.	Installation of Co-generation Plant for On-Site Energy Supply in Motorcycle Factory	7,308
Sony Semiconductor Corporation	Installation of High Efficiency Air Conditioning System and Chillers in Semiconductor Factory	2,588
Inabata & Co., Ltd	Energy Saving for Air-Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller	385

Technical support from MOEJ and IGES

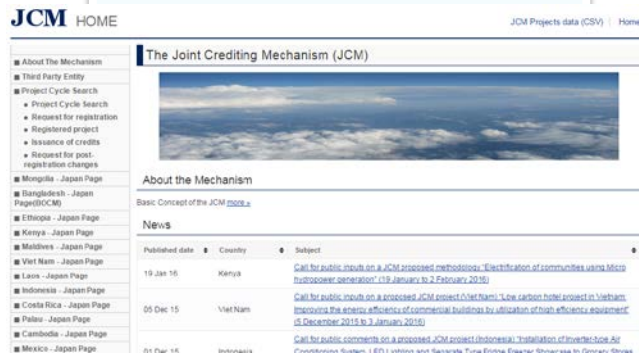


- Applicable for project participants to all JCM financing programmes (Model Projects, Collaborative Financing Programme, and ADB Trust Fund).
- IGES provides technical support for Methodology Development, PDD development and Preparation of monitoring Report

For further information

Official JCM Webpage: rules and guidelines, JCM methodology, projects

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



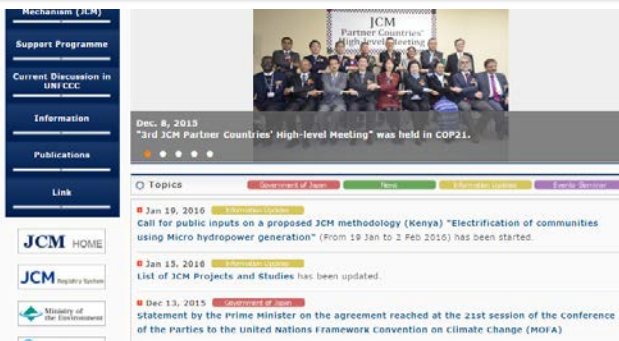
GEC website: call for proposals, financial and project development, feasibility study, JCM booklet

<http://gec.jp/jcm/index.html>



New Mechanisms Information Platform: recent development of the JCM

<http://www.mmechanisms.org/e/>



IGES JCM Database: details of methodologies, projects, feasibility studies

<http://bit.ly/igesjcmdatabase>

Project reference number	Status	Project title	Region	Host Country	Project Participant (Host Country)	Project Participant (Guest Country)	Type of Project	Subsector	Subsector Information
E001	RD	Feasibility Study for Carbon Capture and Process Coupling to Introduce High Efficiency Cogeneration Plant	Asia	Indonesia	PT Peltindo Indonesia	Nippon Kasei Co., Ltd. / PT Pulp & Paper Indonesia (PT Pulp & Paper Indonesia) / PT Pulp & Paper Indonesia	Energy efficiency	Factory	RD
E102	RD	Project of introducing high efficiency cogeneration to a steel mill (high efficiency cogeneration)	Asia	Indonesia	PT ASIA STEEL INDUSTRIES (PT ASIA STEEL INDUSTRIES)	IRONKAWA METS. CO., LTD.	Energy efficiency	Factory	RD
E103	RD	Project of introducing high efficiency cogeneration to a food processing plant (introduction)	Asia	Indonesia	PT NIPPON FOOD INDUSTRIES (PT NIPPON FOOD INDUSTRIES)	IRONKAWA METS. CO., LTD.	Energy efficiency	Factory	RD
RD001	RD	Introduction of high efficiency heat recovery system in a steel mill (introduction)	Asia	Indonesia	PT ASIA STEEL INDUSTRIES (PT ASIA STEEL INDUSTRIES)	IRONKAWA METS. CO., LTD.	Energy efficiency	Commercial & household	RD
RD002	RD	Introduction of high efficiency heat recovery system in a steel mill (introduction)	Asia	Indonesia	PT ASIA STEEL INDUSTRIES (PT ASIA STEEL INDUSTRIES)	IRONKAWA METS. CO., LTD.	Energy efficiency	Commercial & household	RD