



# Progress of Joint Crediting Mechanism (JCM)

October 11, 2015  
International Cooperation Office  
Ministry of the Environment, Japan (MOEJ)

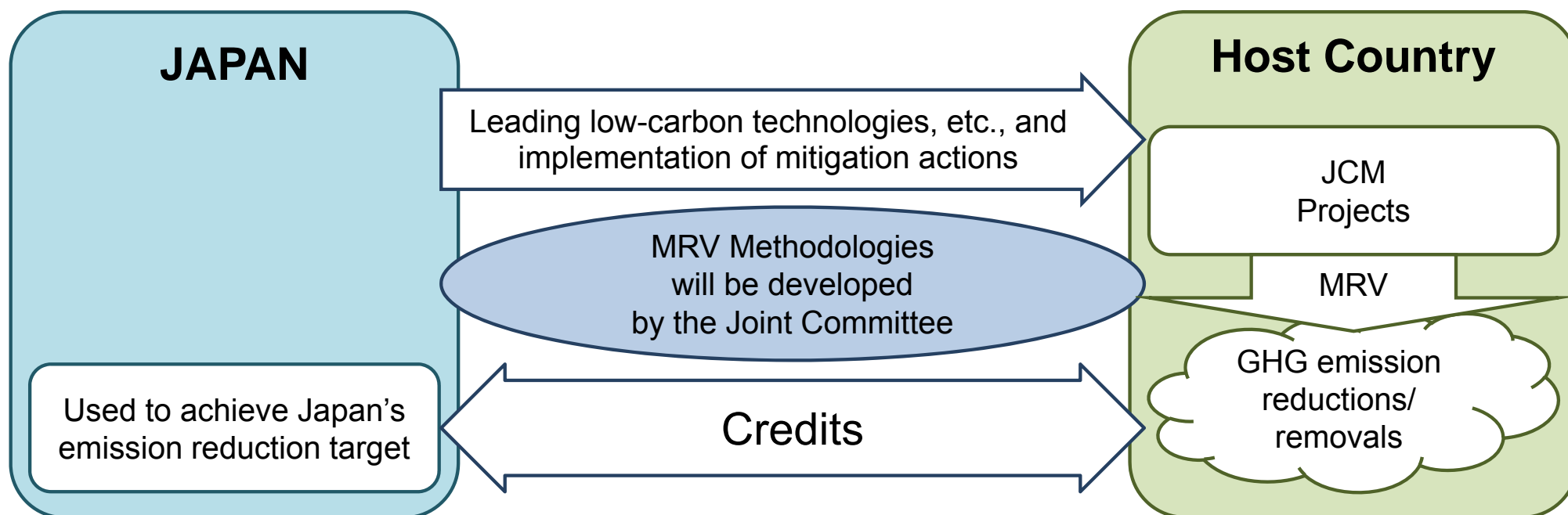


# 1. Joint Crediting Mechanism (JCM)



# Basic Concept of JCM

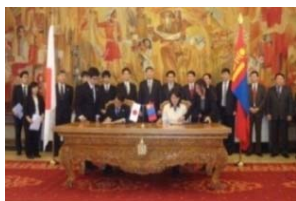
- Facilitating diffusion of leading low carbon technologies, products, systems, services, and infrastructure, as well as implementation of mitigation actions, and contributing to sustainable development of developing countries.
- Appropriately evaluating contributions from Japan to GHG emission reductions or removals in a quantitative manner, by applying measurement, reporting and verification (MRV) methodologies, 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, complementing the CDM.





# JCM Partner Countries

- Japan has held consultations for the JCM with developing countries since 2011 and has established the JCM with countries as shown below.
- Total 7 JCM projects have been registered (3 JCM projects between Indonesia and Japan, 2 JCM projects between Mongolia and Japan, 1 JCM project between Palau and Japan, and 1 JCM project between Viet Nam and Japan) .



**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)



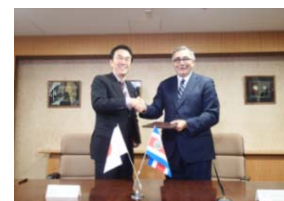
**Viet Nam**  
Jul. 2, 2013  
(Hanoi)



**Lao PDR**  
Aug. 7, 2013  
(Vientiane)



**Indonesia**  
Aug. 26, 2013  
(Jakarta)



**Costa Rica**  
Dec. 9, 2013  
(Tokyo)



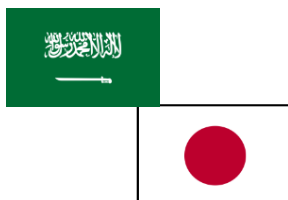
**Palau**  
Jan. 13, 2014  
(Ngerulmud)



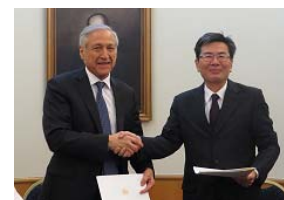
**Cambodia**  
Apr. 11, 2014  
(Phnom Penh)



**Mexico**  
Jul. 25, 2014  
(Mexico City)



**Saudi Arabia**  
May 13, 2015



**Chile**  
May 26, 2015  
(Santiago)



**Myanmar**  
Sep. 16, 2015  
(Naypyidaw)



## 2. Feasibility Studies and Financial Supports for JCM

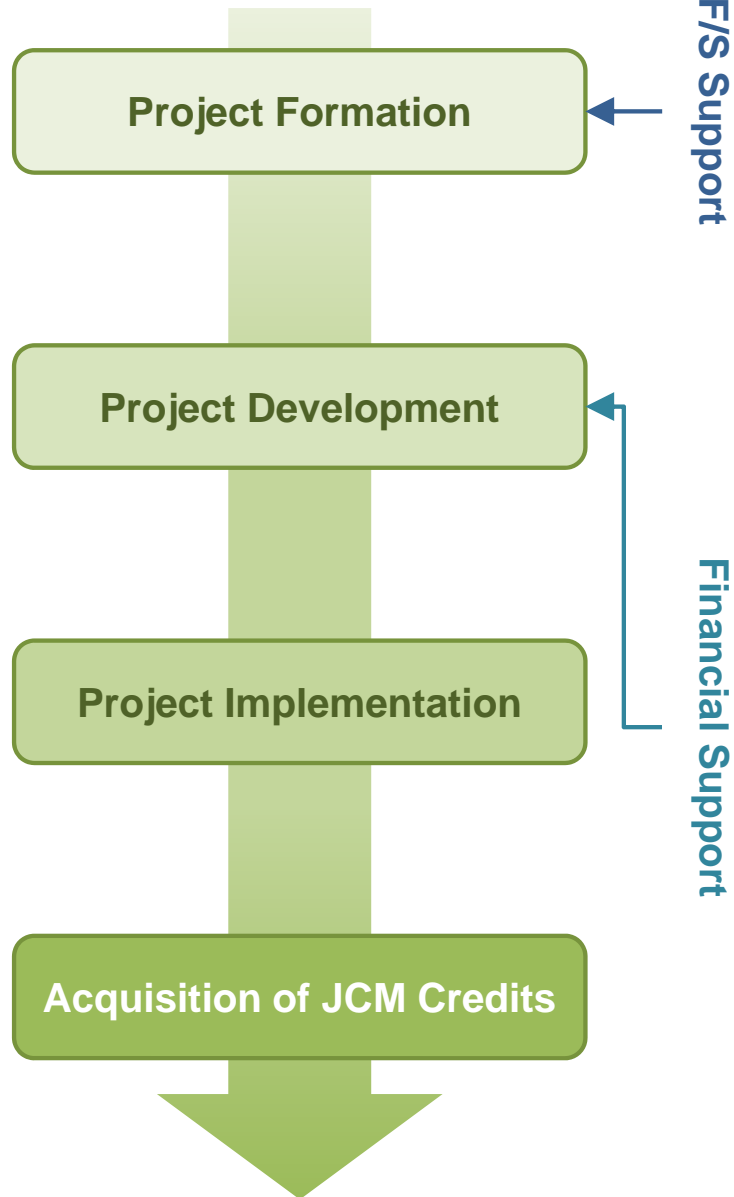


# JCM Project Flow and JCM Supports by MOEJ

## JCM Project Flow

## JCM Supports by MOEJ

\*USD1=JPY120



### JCM Capacity Building Programmes and Feasibility Studies

FY14: JPY3.6B (USD30MM)  
 FY15: JPY2.6B (USD22MM) (↓)

### JCM Model Projects

FY14: JPY1.2B (USD10MM), JPY3.6B (USD30MM) over 3 years  
 FY15: JPY2.4B (USD20MM), JPY7.2B (USD60MM) over 3 years (↑)

- Small/medium-scale projects (JPY several tens of million to several hundreds of million)

### Collaborative Financing Programme (with JICA, etc.)

FY14: JPY4.2B (USD35MM)  
 FY15: JPY1.8B (USD15MM), JPY7.2B (USD60MM) over 4 years (↑)

- Infrastructure (PPP projects, JICA overseas investment projects) (JPY several billion to over 10 billion)

### ADB Trust Fund (JFJCM: Japan Fund for Joint Crediting Mechanism)

FY14: JPY1.8B (USD15MM)  
 FY15: JPY1.8B (USD15MM) (→)

- Infrastructure (ADB pipeline projects) (JPY several billion to over 10 billion)





# Capacity Building Programmes & Feasibility Studies by MOEJ

## Capacity Building Programmes

### Region

Asia, Africa, Latin America, and Small Island countries

### Scope

Facilitating understanding on the JCM rules and guidelines, enhancing capacities for implementing MRV

### Activities

Consultations, workshops, seminars, training courses and study tours, etc.

### Target

Government officials, private sectors, candidate for validation & verification entities, local institutes and NGOs



## 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

Large Scale JCM Feasibility Study

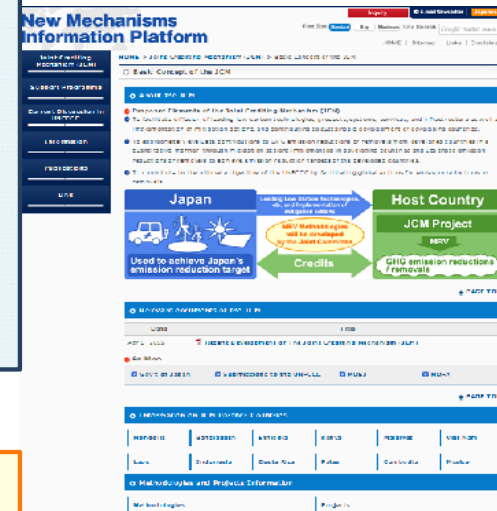
To survey feasibility of potential large scale JCM projects including city-to-city collaboration

### Reports

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


## Outreach

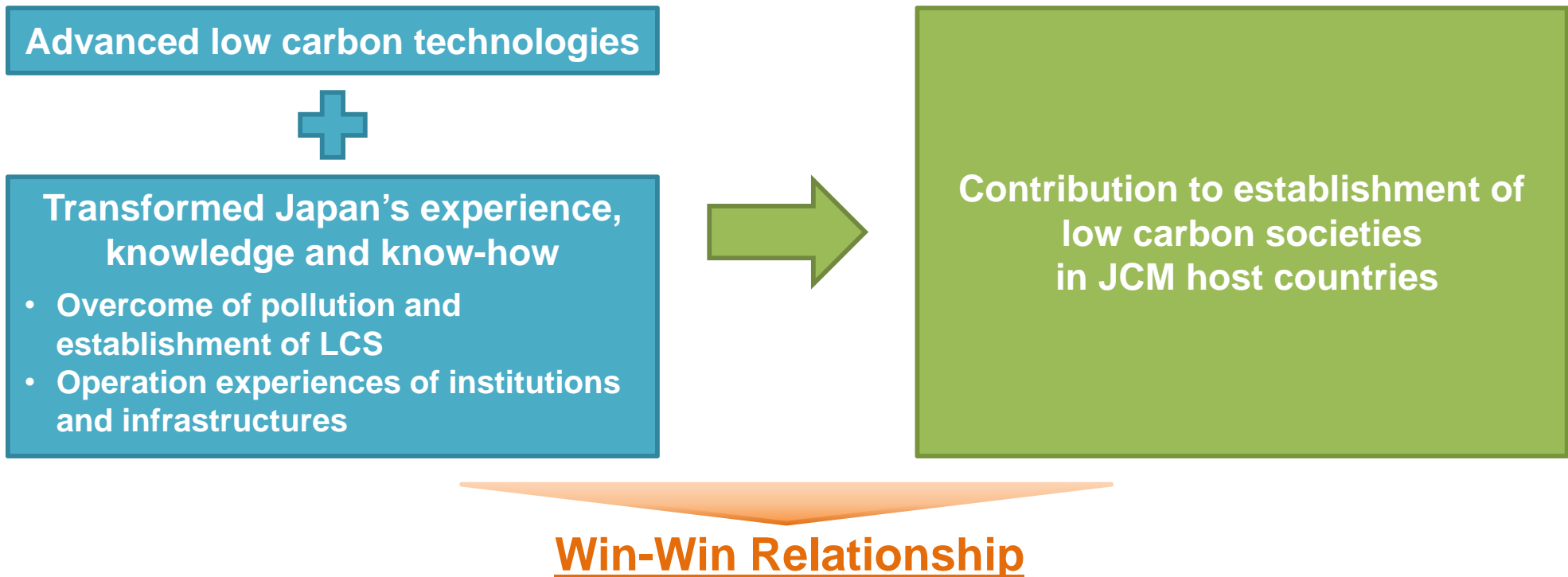
**New Mechanisms Information Platform** website provides the latest information on the JCM <URL: <http://www.mmechanisms.org/e/index.html>>





# City-to-City Collaboration as JCM Feasibility Studies

- It is necessary to establish low carbon societies (LCS) in Asia and other developing and emerging countries in order to reduce GHG emission.
  - Under the process of JCM project formation, it can realize not only diffusion of advanced low carbon technologies but also transfer of knowledge and know-how to overseas Local Government from Japanese Local Government.
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- The Government of Japan emphasizes and supports the “city-to-city collaboration” to leverage the knowledge and know-how which Japanese Local Government transformed or adopted for overseas Local Government in each city.



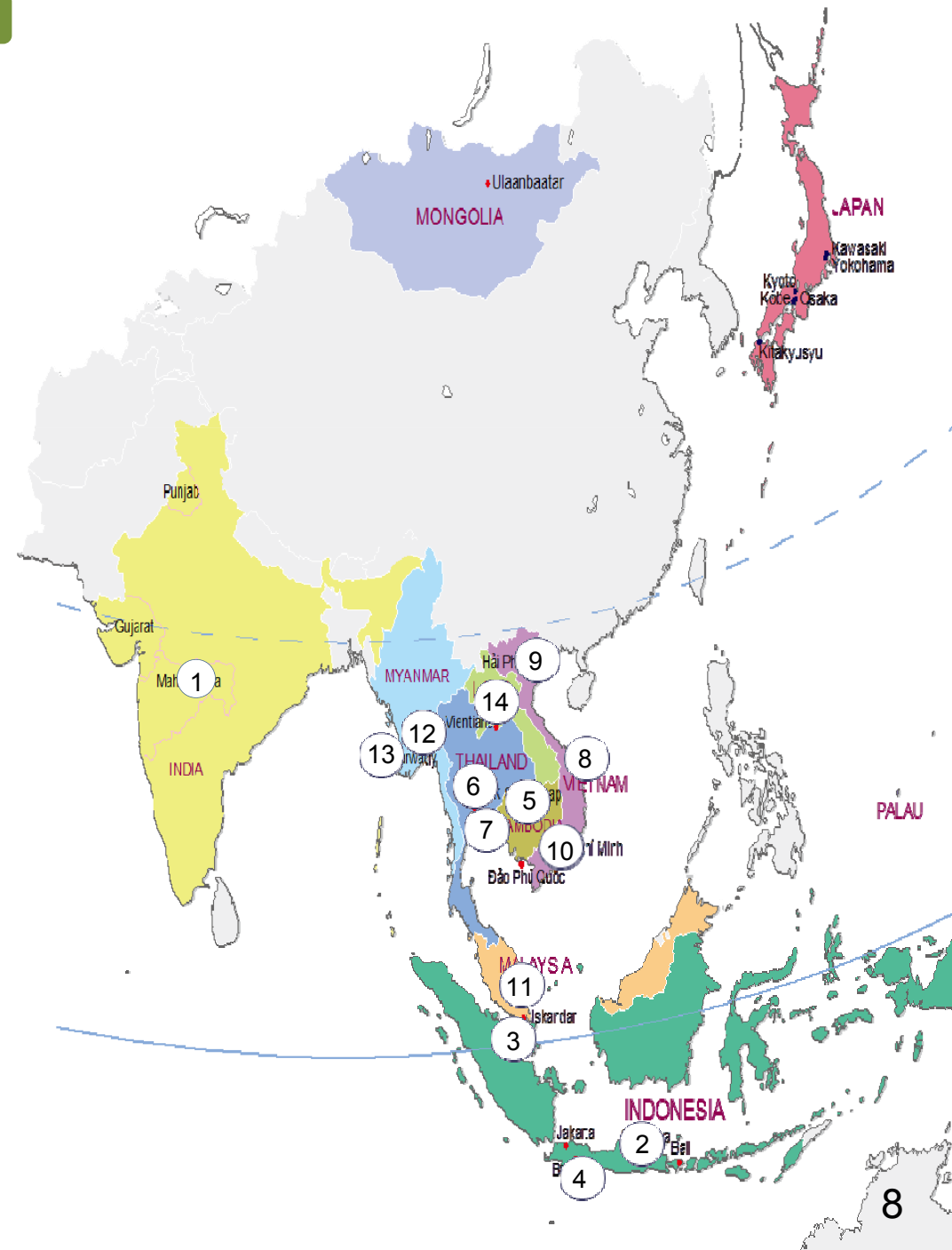




# FY2015 Feasibility Studies for Large Scale JCM Project Development (City-to-City Collaboration)

## Project List

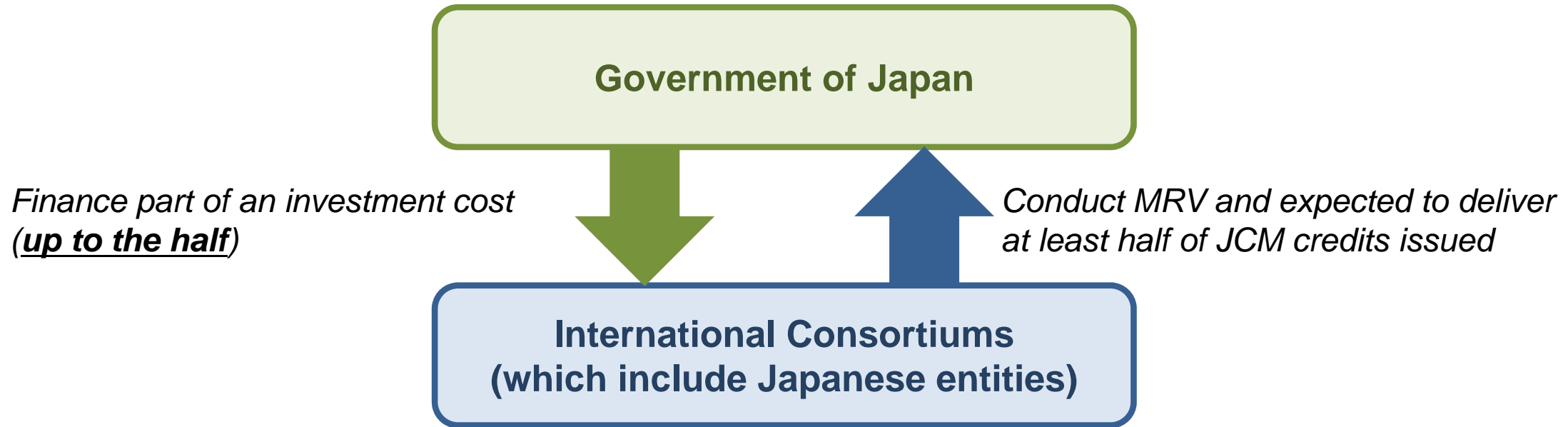
1. Promotion of low carbon city by properly developing material recycling systems in Bengaluru City (Bengaluru, India - Yokohama)
2. Establishment of base for low-carbon project expansion in Surabaya (Surabaya, Indonesia - Kitakyushu)
3. Project for developing JCM projects under city-to-city collaboration between Yokohama city and Batam city (Batam, Indonesia - Yokohama)
4. Project for low carbon society development under collaboration between Bandung City and City of Kawasaki (Bandung, Indonesia - Kawasaki)
5. Project for developing low-carbon tourism cities through the Joint Crediting Mechanism in Siem Reap (Siem Reap, Cambodia - Kanagawa)
6. JCM projects development (energy efficiency, and waste and waste water) under the Bangkok Master Plan on Climate Change, and study on financial and other facilitation schemes for introducing low carbon technologies (Bangkok, Thailand - Yokohama)
7. Promotion of decarbonizing of municipal waste management and ecological industrial town in Rayong Prefecture (Rayong, Thailand - Kitakyushu)
8. JCM Feasibility Study in Da Nang through "Technical Cooperation for Sustainable Urban Development" with Yokohama City (Da Nang, Viet Nam - Yokohama)
9. The whole city low carbonization in Hai Phong City (Hai Phong, Viet Nam - Kitakyushu)
10. Ho Chi Minh City – Osaka City cooperation programme for developing low carbon city (Ho Chi Minh, Viet Nam - Osaka)
11. Establishment of base for low-carbon project expansion in Iskandar (Iskandar, Malaysia - Kitakyushu)
12. Study for building a sustainable low carbon city around the industrial zone in Patheingyi City, Ayeyarwady Division, Myanmar (Patheingyi, Myanmar - Fukushima)
13. JCM project formulation study through city-to-city collaboration in Yangon (Yangon, Myanmar - Kawasaki)
14. Programme for the establishment of low-carbon historic city in Vientiane, based on city-to-city cooperation between Vientiane Capital and Kyoto City (Vientiane, Lao PDR - Kyoto)





# JCM Model Projects

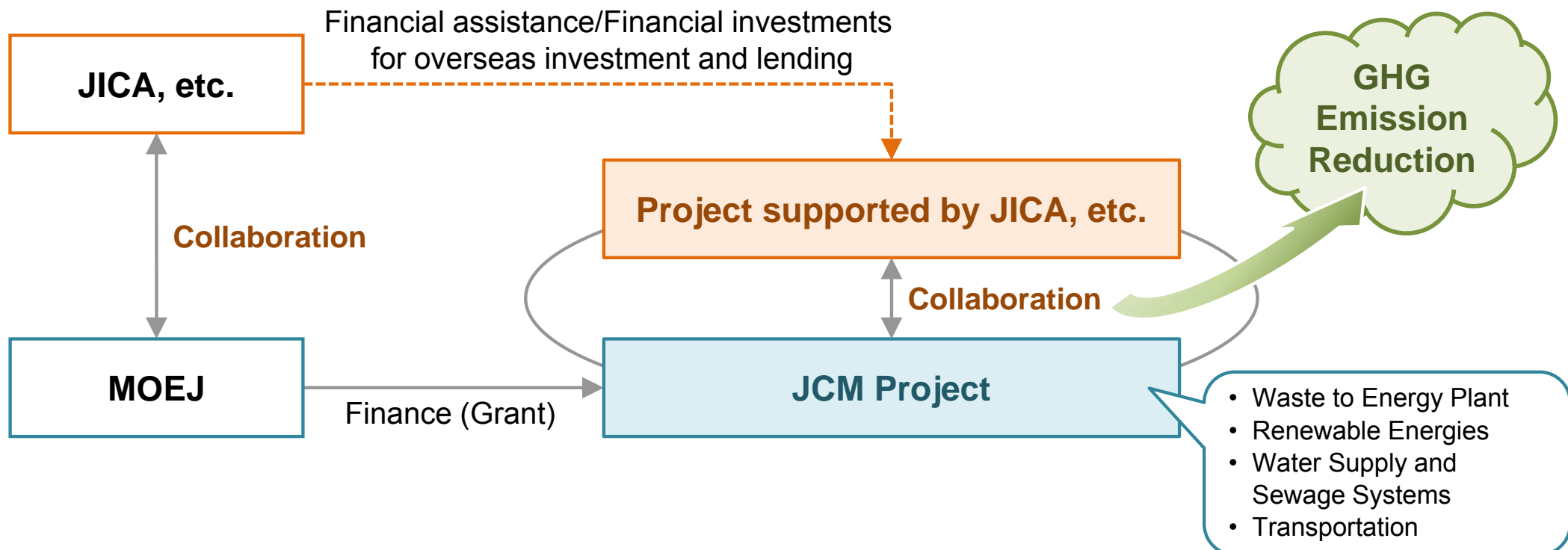
- The budget for FY2015 JCM Model Projects by MOEJ is JPY2.4B (approx. USD20MM) per year by FY2017 (total JPY7.2B over 3 years).
- **Scope of Financing:** facilities, equipment, vehicles, etc. which reduce CO2 from fossil fuel combustion as well as construction cost for installing those facilities, etc.
- **Eligible Projects:** starting installation after the adoption of the financing and finishing installation within three years.





# Collaborative Financing Programme

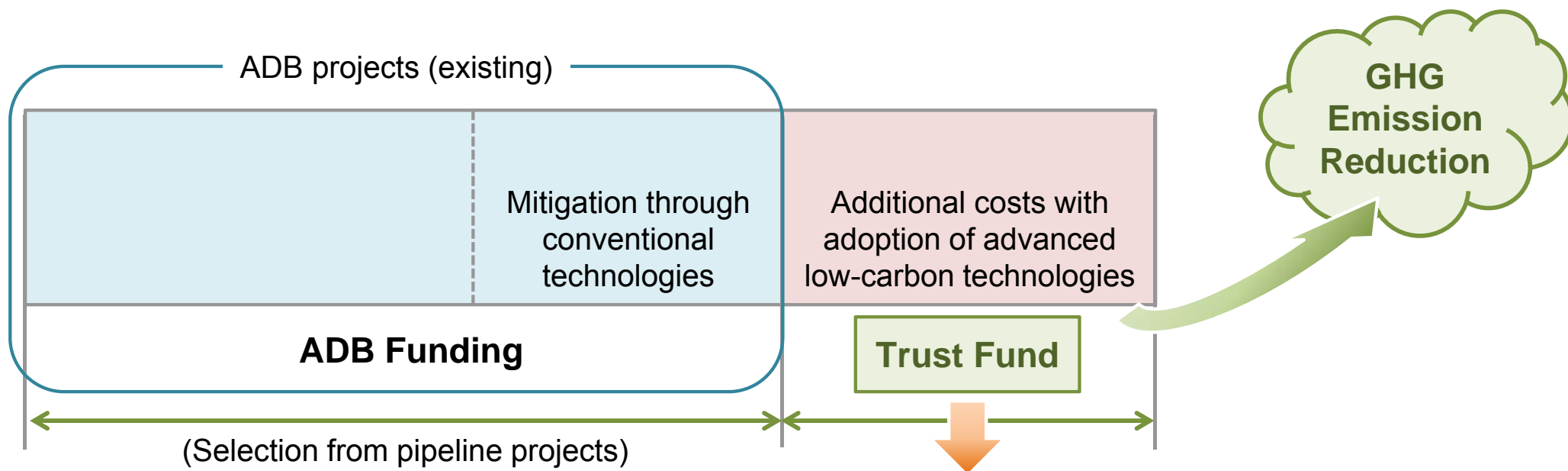
- The budget for FY2015 Collaborative Financing Programme by MOEJ is JPY1.8B (approx. USD15MM) per year by FY2018 (total JPY7.2B over 4 years).
- In this scheme, MOEJ provides financial support (grant up to the half of “JCM Project” cost) to the projects which have the better efficiency of reducing GHG emission in collaboration with other projects supported by JICA and other governmental financial institutions.
- This financial support aims to expand superior and advanced low-carbon technologies for building the low carbon society as the whole city wise and area wise in the wider fields, and to acquire credits by the JCM.





# ADB Trust Fund (JFJCM)

- The budget for FY2015 ADB Trust Fund (JFJCM: Japan Fund for Joint Crediting Mechanism) is JPY1.8B (approx. USD15MM).
- In this scheme, MOEJ contributes the budget to the trust fund established at ADB, and ADB provides the financial incentive (grant) for the adoption of the advanced low-carbon technologies which are superior in GHG emission reduction but expensive in ADB-financed projects.
- This trust fund aims to develop ADB projects as the “Leapfrog” developments by the advanced low-carbon technologies and to show the effectiveness of the JCM scheme by the acquisition of credits of the JCM.



These additional costs can be reduced by utilizing funds contributed to the trust fund by MOEJ, so that advanced low-carbon technologies that are not currently adopted in the projects due to high costs can be used more widely.

## Typical Sectors for JCM Projects



Renewable Energy



Energy Saving



Waste Handling & Disposal



Transport

# Registered Projects under the JCM 1/2 (as of Aug. 4 2015)

Country	Reference number	Project title	Emission Reductions(Average)
Indonesia	ID001	Energy Saving for Air-Conditioning and Process Cooling by Introducing High-efficiency Centrifugal Chiller	114 tCO <sub>2</sub> /year
Indonesia	ID002	Project of Introducing High Efficiency Refrigerator to a Food Industry Cold Storage in Indonesia	120 tCO <sub>2</sub> /year
Indonesia	ID003	Project of Introducing High Efficiency Refrigerator to a Frozen Food Processing Plant in Indonesia	21 tCO <sub>2</sub> /year
Palau	PW001	Small scale solar power plants for commercial facilities in island states	227 tCO <sub>2</sub> /year





## Registered Projects under the JCM 2/2 (as of Aug. 4 2015)

Country	Reference number	Project title	Emission Reductions(Average)
Mongolia	MN001	Installation of high-efficiency Heat Only Boilers in 118th School of Ulaanbaatar City Project	92 tCO2
Mongolia	MN002	Centralization of heat supply system by installation of high-efficiency Heat Only Boilers in Bornuur soum Project	206 tCO2
Vietnam	VN001	Eco-Driving by Utilizing Digital Tachograph System	296 tCO2





# Adopted Project –example of the ADB Trust Fund Scheme-

## Use of Proceeds

## Location (Atolls and Islands)

### Maldives

ADB Grant

USD 38MM



PV



ADB-administered Strategic Climate Fund (CIF SREP)

USD 12MM



European Investment Bank

USD 50MM



Grid

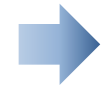


Diesel



Islamic Development Bank

USD 10MM



POISED Phase 1  
5 islands

Khurendhoo

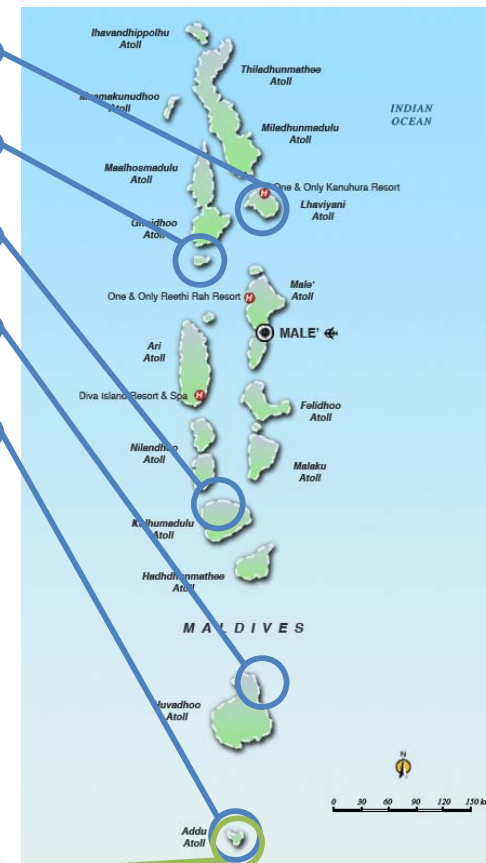
Goidhoo

Buruni

Vilingili

Addu

After Phase 2  
Total 160 islands



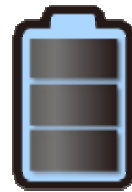
Improvement of energy efficiency and reduction of energy-derived CO2 emission in Addu

JFJCM  
(Japan Fund for JCM)

USD 5MM



EMS



Lithium-ion Battery

Addu

Addu has a population of over 23,000 inhabitants, the second largest habited island in Maldives.



\*POISED: Preparing Outer Islands for Sustainable Energy Development



# JCM Financing Programs by MOEJ (FY2013/2014/2015)

- 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

- 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

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

- Kenya:**
- Solar Diesel Abatement Projects

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

- 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)\*

- Viet Nam:**
- 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

- Cambodia:**
- Introduction of High Efficiency LED Lighting Utilizing Wireless Network

- 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

- Mexico:**
- Domo de San Pedro II Geothermal Power Generation
  - Energy Saving by Converting from Hg-Cell Process to Ion-exchange Membrane Process at Chlorine Production Plant

- Indonesia:**
- 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
  - Installation of Cogeneration System in Hotel
  - Energy Saving by Utilizing Waste Heat at Hotel
  - Energy Saving for Air-Conditioning at Shopping Mall with High Efficiency Centrifugal Chiller
  - Energy Saving for Industrial Park with Smart LED Street Lighting System
  - Energy Saving for Office Building with High Efficiency Water Cooled Air-Conditioning Unit
  - Introduction of High Efficiency Once-through Boiler System in Film Factory

- 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)

**Total 12 countries, 41 projects**

- The underlined projects have been registered as the JCM projects (6 projects)

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



## 3. Reference





# Japan's Domestic Emission Reduction Target for 2030 (1/2)

Emission of **1.042 Billion t-CO<sub>2</sub> in FY 2030**

= **26.0% reduction from FY2013** (25.4% reduction from FY2005)

- ❑ achieved by domestic emission reduction and removals.
- ❑ supported by bottom-up calculation of policies, measures and technologies, taking into account possible challenges including technical limitations and cost issues to ensure consistency with the energy mix.

## Scope

- 100% Coverage of emission in Japan: all sectors and GHGs CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub>

## Assumptions and Methodologies

- In accordance with the latest IPCC GHG Inventory Guideline
- Net removals by forest and other carbon sinks are to be accounted by methodologies under the Kyoto Protocol.
- The Joint Crediting Mechanism (JCM) is not included as a basis of the bottom-up calculation of above numbers, but emission reductions and removals acquired by Japan will be properly counted as Japan's reduction.
- These methodologies are subject to future international negotiations on accounting rules.



# Japan's Domestic Emission Reduction Target for 2030 (2/2)

## Gas by Gas Emissions

	Expected Emissions in FY2030 (Approx.)	Reduction Compared to FY2013 and FY2005	
Energy-related CO <sub>2</sub>	927.0 Mt-CO <sub>2</sub>	- 25.0%	- 24.0%
Non-energy-originated CO <sub>2</sub>	70.8 Mt-CO <sub>2</sub>	- 6.7%	- 17.0%
Methane	31.6 Mt-CO <sub>2</sub>	- 12.3%	- 18.8%
Nitrous Oxide	21.1 Mt-CO <sub>2</sub>	- 6.1%	- 17.4%
Fluorinated gases	28.9 Mt-CO <sub>2</sub>	- 25.1%	+ 4.5%

## Removals by Carbon Sink

37 Mt-CO<sub>2</sub> (2.6% of emission in FY2013)

## International Contributions

- ✓ Japan will continue to implement the JCM, and use them to achieve Japan's domestic emission reduction target.
- ✓ Through the JCM, accumulated emission reduction or removal of **50 to 100 Mt-CO<sub>2</sub>** reduction or removal is expected by 2030.