Supporting mitigation actions in developing countries

-Japan's support programmes for NAMA to implement low-carbon initiatives-

June 5, 2014

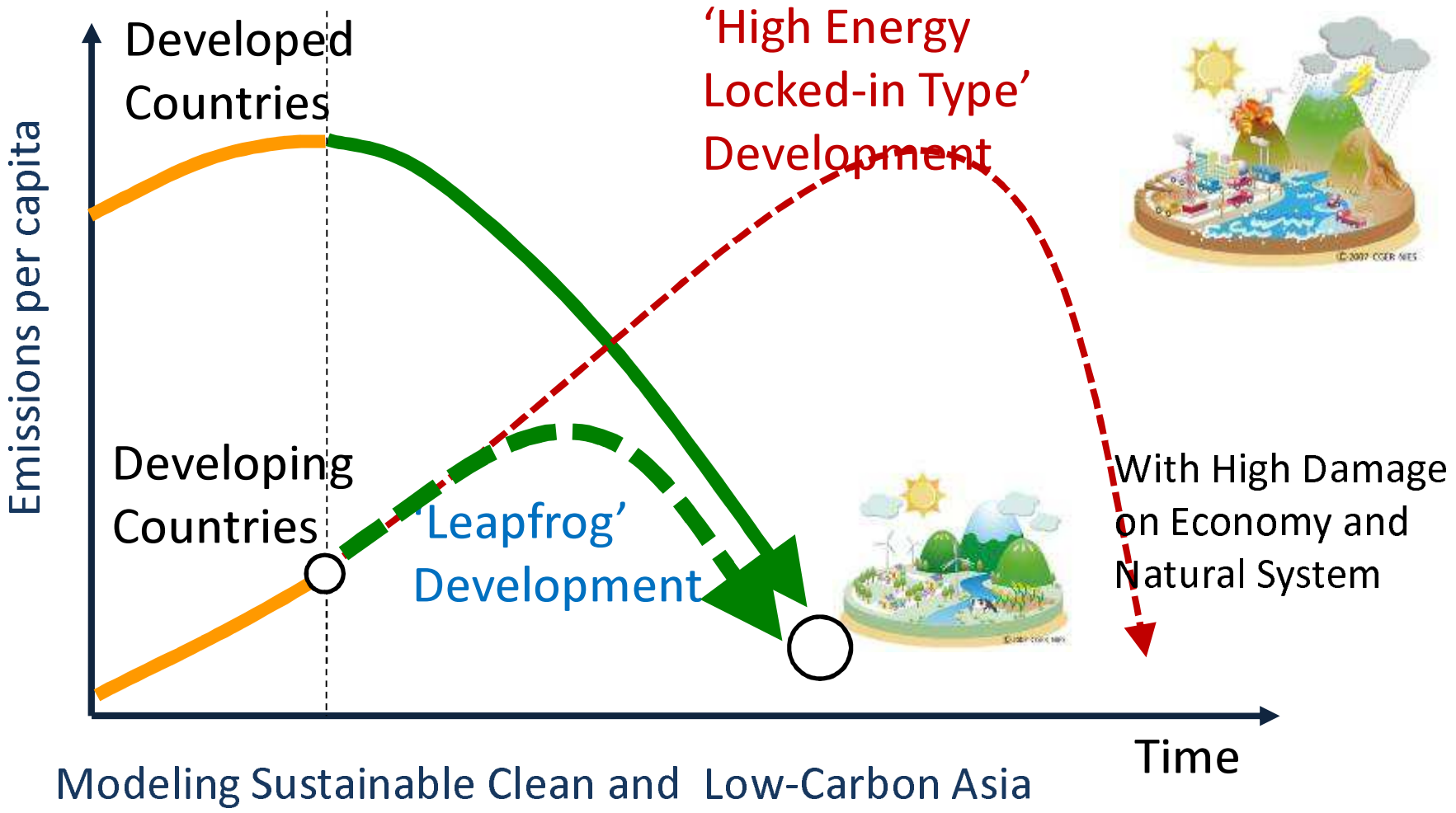
Hiromi Masuda
Ministry of the Environment, Japan

Overview

1. Concept of mitigation actions in developing countries
2. Supporting scenario/plan-making
3. Supporting diffusion of low carbon technology
4. Supporting systems for implementation

1. Concept of mitigation actions in developing countries

Concept of Leapfrog Development



"Asian Low-Carbon Society Scenario Development Study" FY2009-2013, funded by Global Environmental Research Program, MOEJ

http://2050.nies.go.jp/index.html

Package of Support for Leapfrog Development

Leapfrog Development

Nationally Appropriate Mitigation Actions (NAMA)

①Strategy
- Scenario & Planning

②Technology
- Energy saving
- Renewable energy

③System
- MRV
  – Inventory, NC, BUR

Low Carbon Society Scenario

NAMA Guidebook

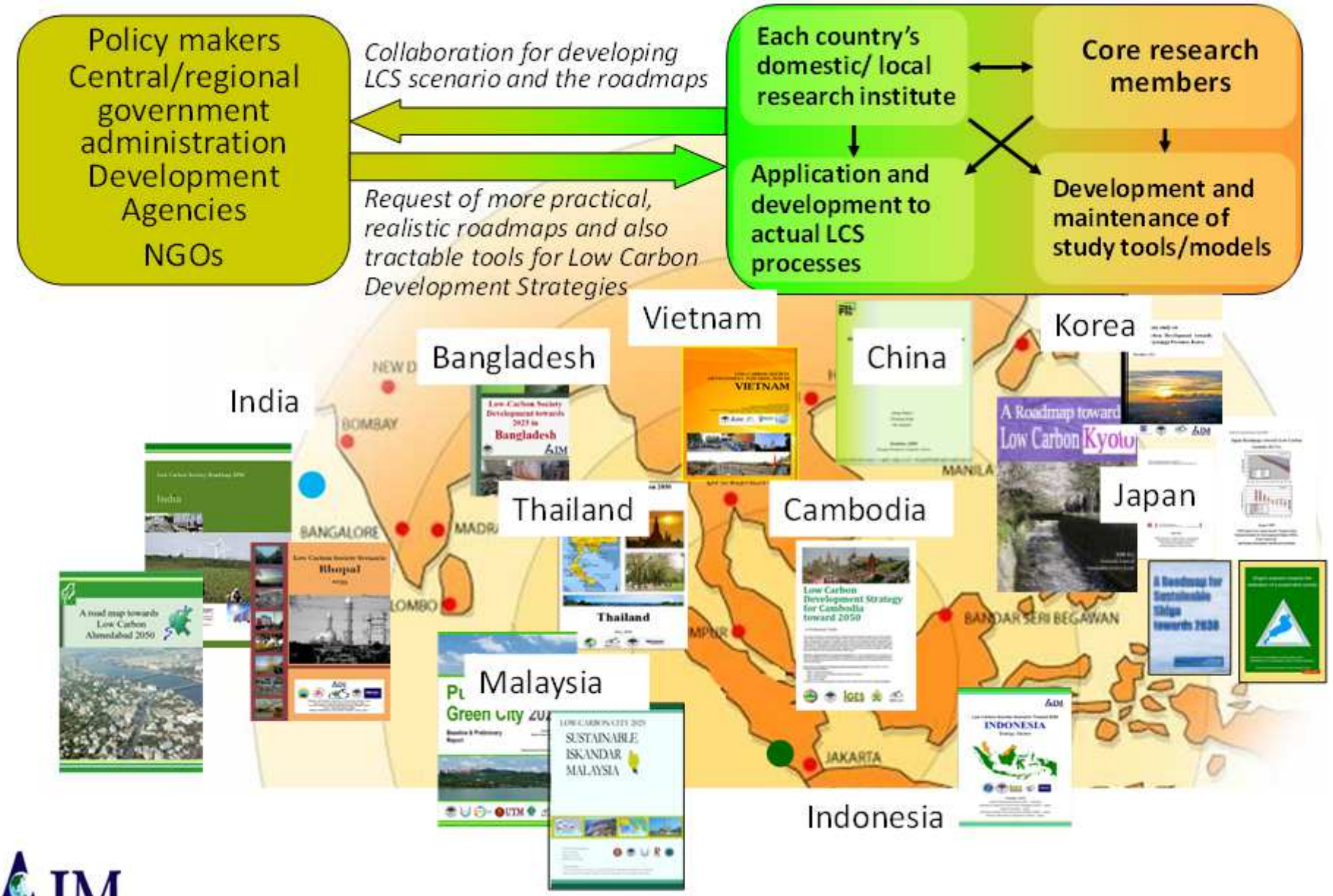
JCM (Joint Crediting Mechanism)
- Capacity Building
- Feasibility Studies
- Model projects
- Finance scheme

Workshop for Inventories

City- to- city Cooperation

2. Supporting scenario/plan-making

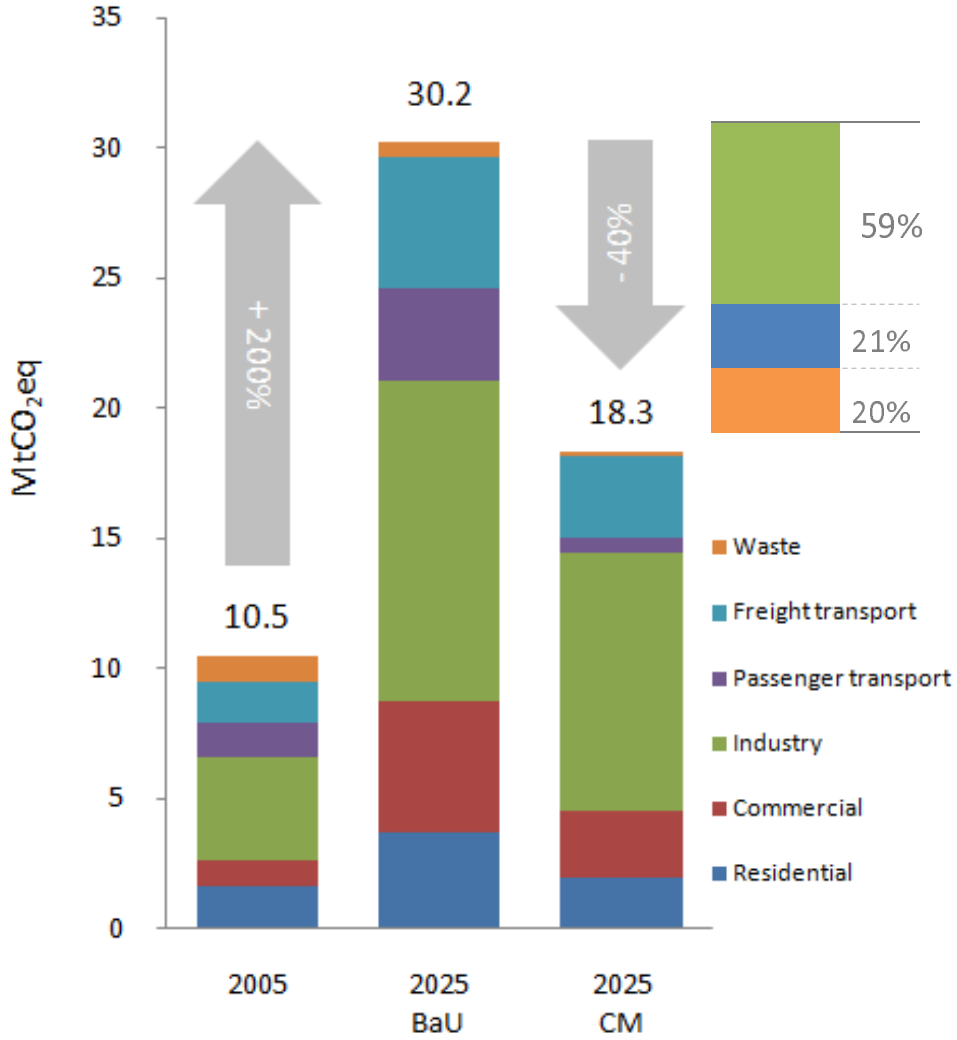
Development of Low Carbon Society (LCS) Scenarios



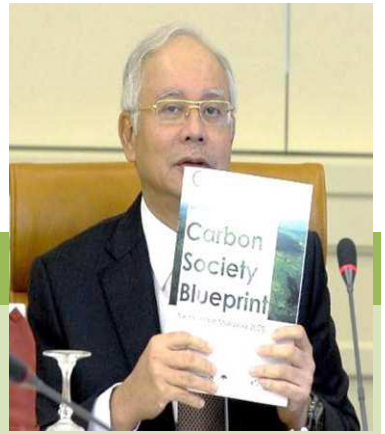
AIM
ASIA-PACIFIC INTEGRATED MODEL

http://2050.nies.go.jp/LCS

An Example of LCS Scenario (Iskandar, Malaysia)



12 actions for LCS Blueprint



Green Economy

1 Integrated Green Transportation
2 Green Industry
3 Low Carbon Urban Governance
4 Green Building and Construction
5 Green Energy System and Renewable Energy

Green Community

6 Low Carbon Lifestyle
7 Community Engagement and Consensus Building

Green Environment

8 Walkable, Safe and Livable City Design
9 Smart Urban Growth
10 Green and Blue Infrastructure and Rural Resources
11 Sustainable Waste Management
12 Clean Air Environment**

56% reduction of GHG emission intensity and 40% emission reduction from BaU (business as usual) by 2025 using 2005 as a base year can be achievable by LCSBP, simulated by AIM (Asia-Pacific Integrated Model) supported by MOEJ

NAMA Guidebook

Two approaches of NAMA decisions:

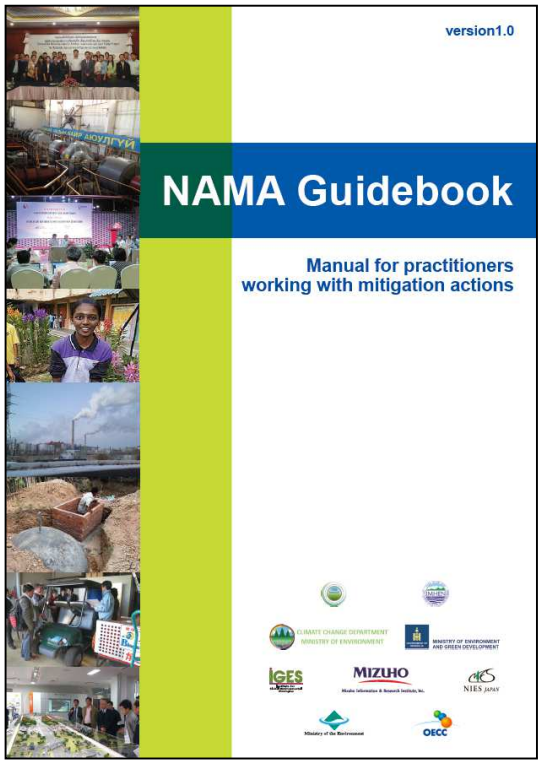
1. Top-down approach

   Aiming at overall national or sectoral emission targets

2. Bottom-up approach

   Focusing on emissions and

   reduction potential at the activity level



City-to-city cooperation

- 6 Cities are selected for pre-feasibility studies in 2014 as primary selection
- Making active use of good cities' relationship.

Project

1. Low Carbon City Planning Project in Surabaya, Indonesia (Surabaya City and Kitakyushu City)
2. Study for Developing Environmentally and Culturally Sustainable Cities through the Joint Crediting Mechanism in Siem Reap (Angkor Park and Siem Reap City and Kamakura City)
3. The feasibility study toward eco-island in cooperation between Kien Giang Province and Kobe City (Kien Giang Province and Kobe City)
4. Hai Phong Green Growth Action Plan Development in Association with Kitakyushu City (Hai Phong City and Kitakyushu City)
5. Ho Chi Minh City – Osaka City Cooperation Project for Developing Low Carbon City (Ho Chi Minh City and Osaka City)
6. Feasibility Study on a Large-Scale GHG Emissions-Reduction Project Development in the Iskandar Development Region, Malaysia (Pasir Gudan, Iskandar Development Region and Kitakyushu City)

City-to-city cooperation between Kitakyusyu and Surabaya

Japan-side

City of Kitakyushu

Project Management

IGES

Kitakyushu Asian Center for Low Carbon Society

Green Sister City (Nov. 2012)

Indonesia-side

City of Surabaya

Development Planning Bureau (BAPPEKO)

Cooperation Div.

Energy sector

54,000t-CO2/yr

NTT DATA Institute of Management Consulting Inc.
NTT Facilities Inc.
Green Prop Co., Ltd
KPMG Azusa LCC,

FS for energy sa… and dispersed power system

…universities, hospitals, shopping malls, data centres etc.

Cooperation:
Fuji Electric Co., Ltd.
Nippon Steel & Sumikin Engineering Co., Ltd.

Cogeneration technology

PT SIER, local companies, National Electricity Company (PLN)

Cooperation:
Japan NUS Co., Ltd.

LED conversion at highway

National Highway Corporation (PERSERO)

Solid waste sector

72,000t-CO2/yr

Cooperation:
Nishihara Co., Ltd.

Waste sorting, recycling, composting

…Dept. of Cleanliness and Landscaping (DKP), Environment Dept. (BLH)

Hitachi Zosen Co., Ltd.

Waste-to-energy (incineration)

Ministry of Energy and Mineral Resources, Ministry of Public Work, Ministry of Environment

Amita Co., Ltd.

Waste-to-energy for industrial waste

Local companies, cement company

Water resource sector

15,000t-CO2/yr

Matsuo Sekkei Co., Ltd.
Kitakyushu City Waster and Sewer Bureau

Energy saving at water and sludge treatment plants

PDAM, Keputih sludge treatment plant, Industrial Estate Company (PT SIER)

Transportation sector

1,000t-CO2/yr

Public transportatio…
Improvement of traffic syste… for waste collection vehicles, low emission vehicles

ALMEC VPI Co., Ltd.

Transportation Dept., bus and taxi companies, DKP

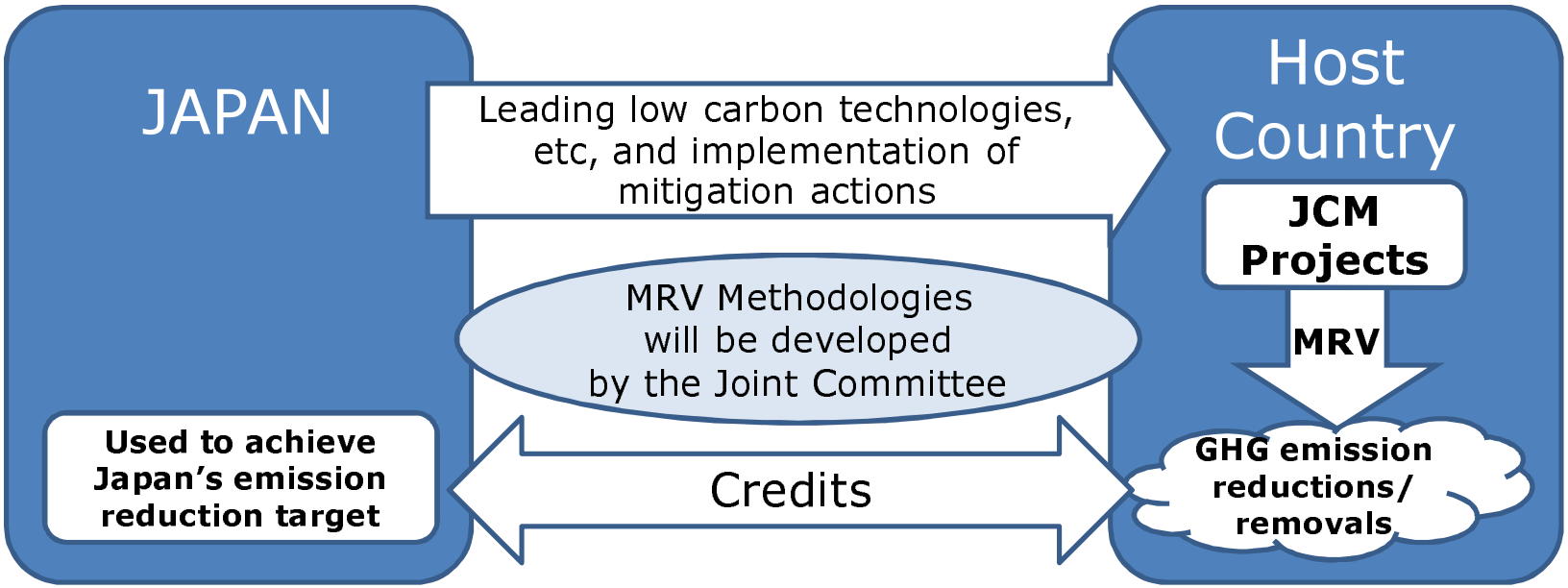
Potential CO2 emission reduction: Total 140,000t/year in 3 years

Cooperation: Findings of other projects in Surabaya funded by other sources were shared to this project.

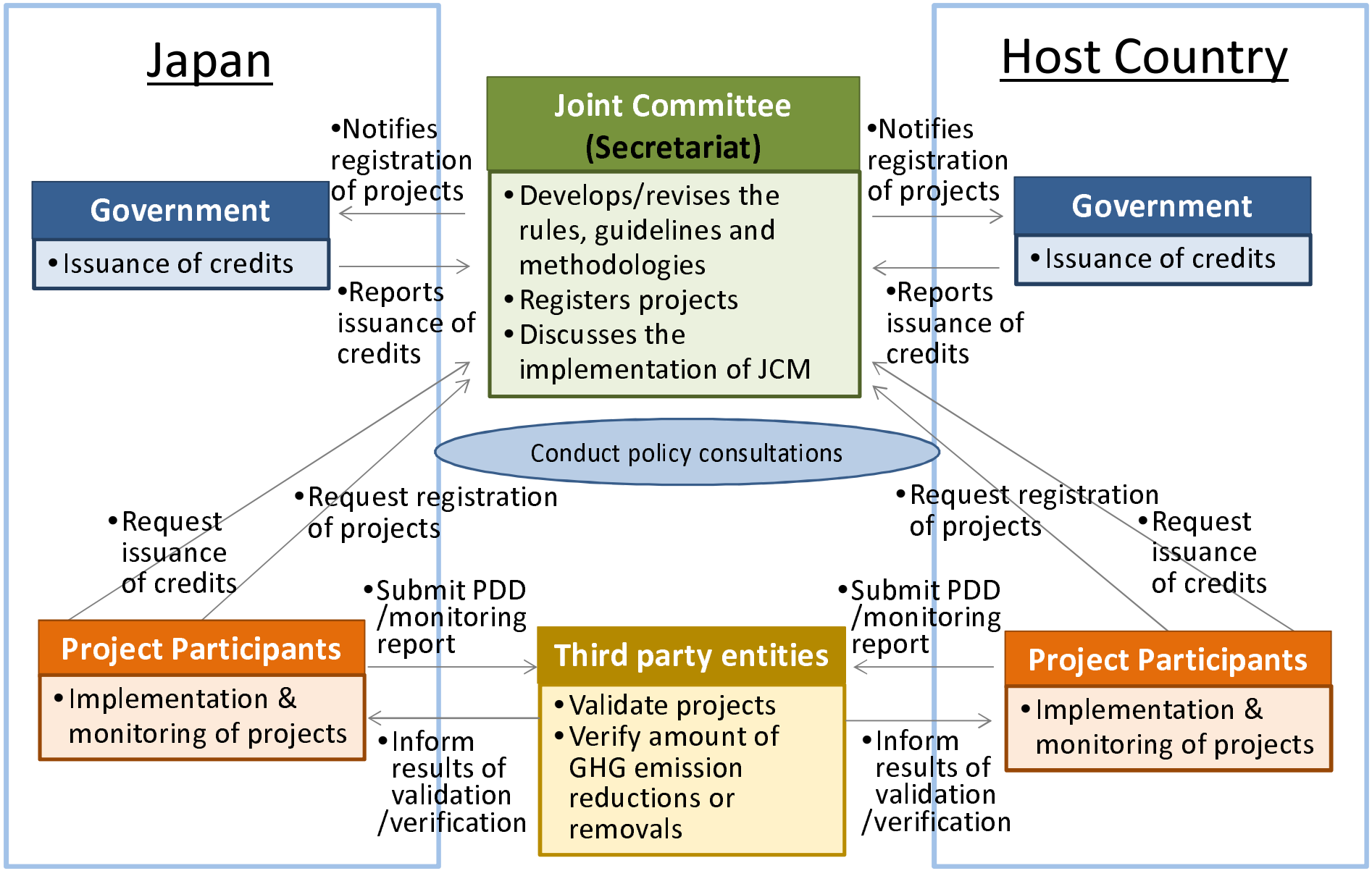
3. Supporting diffusion of low carbon technology

Basic Concept of the Joint Crediting Mechanism (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 to GHG emission reductions or removals from Japan 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.

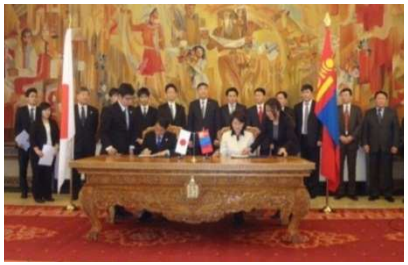


Scheme of the JCM



Countries with which Japan has signed on bilateral documents

- Japan has held consultations for the JCM with developing countries since 2011 and signed the bilateral document for the JCM with Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau and Cambodia.



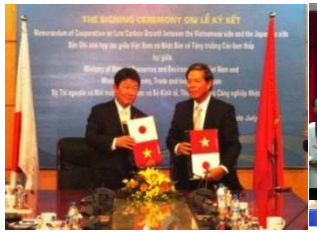
Mongolia
On Jan. 8, 2013
（Ulaanbaatar）

Bangladesh
On Mar. 19, 2013
(Dhaka)

Ethiopia
On May 27, 2013
(Addis Ababa)

Kenya
On Jun. 12,2013
(Nairobi)

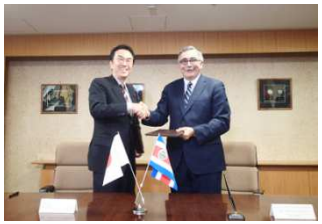
Maldives
On Jun. 29, 2013
(Okinawa)



Viet Nam
On Jul. 2, 2013
(Hanoi)

Lao PDR
On Aug. 7, 2013
(Vientiane)

Indonesia
On Aug. 26, 2013
(Jakarta)



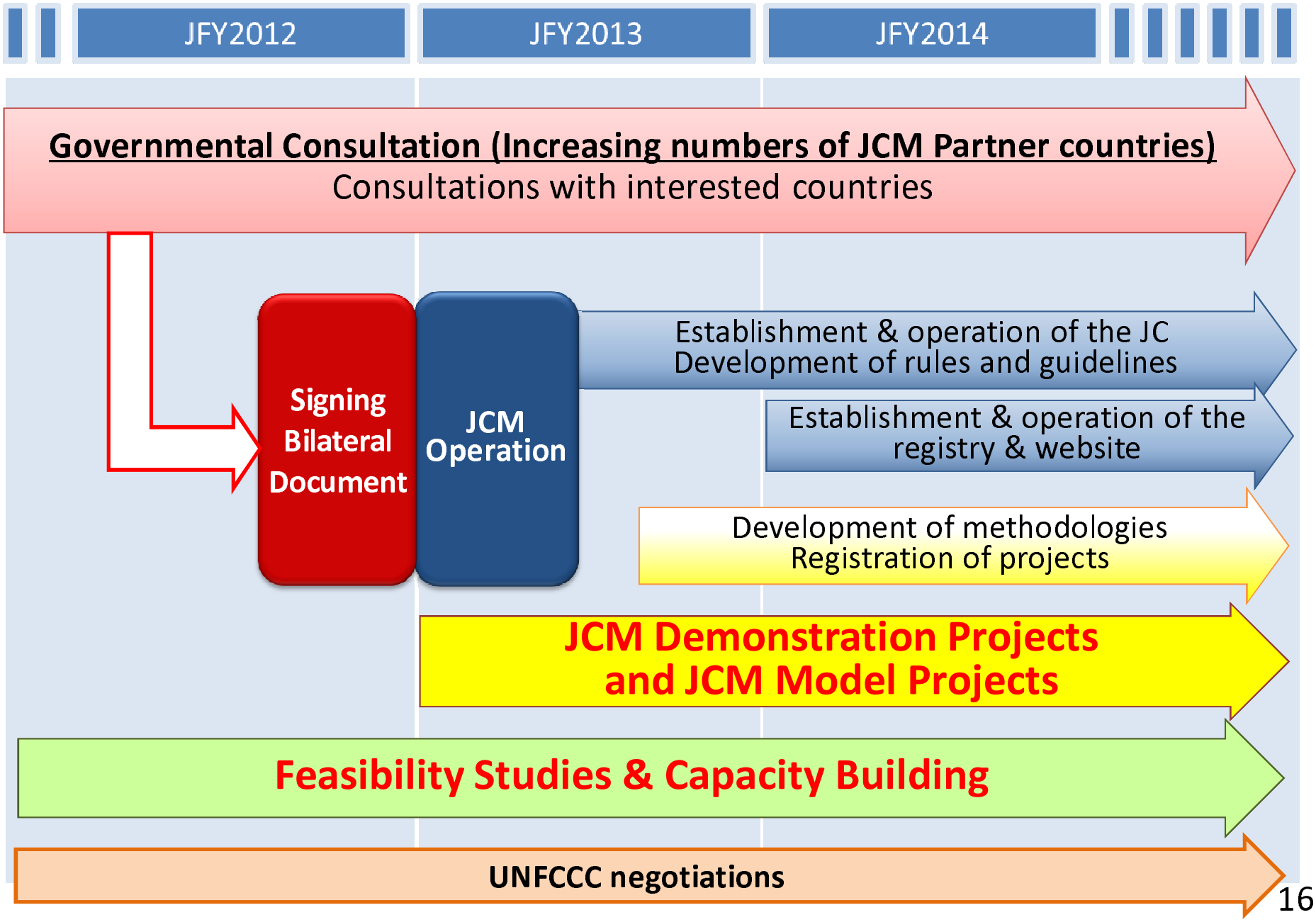
Costa Rica
On Dec. 9, 2013
(Tokyo)

Palau
On Jan. 13, 2014
(Ngerulmud)

Cambodia
On Apr. 11, 2014
(Phnom Penh)

- Japan held the Joint Committee with Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam and Indonesia respectively.

Roadmap for the JCM



Capacity Building Programmes & Feasibility Studies by MOEJ

Capacity Building Programmes

Region

Asia, Africa, Latin America, and Small Island countries

Activities

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

Scope

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

Target

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

Feasibility Studies

Objective

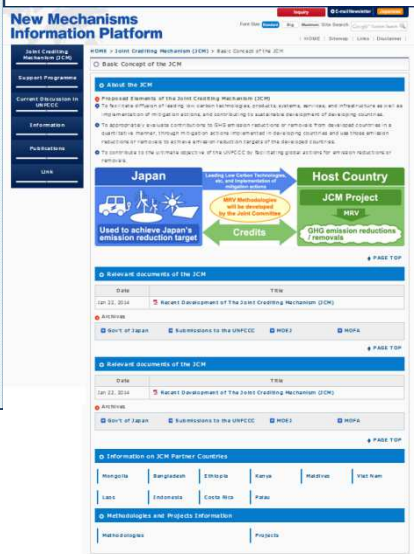
Elaborating investment plan on JCM projects, developing MRV methodologies and investigating feasibility on potential JCM projects,

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 level cooperation

Reports

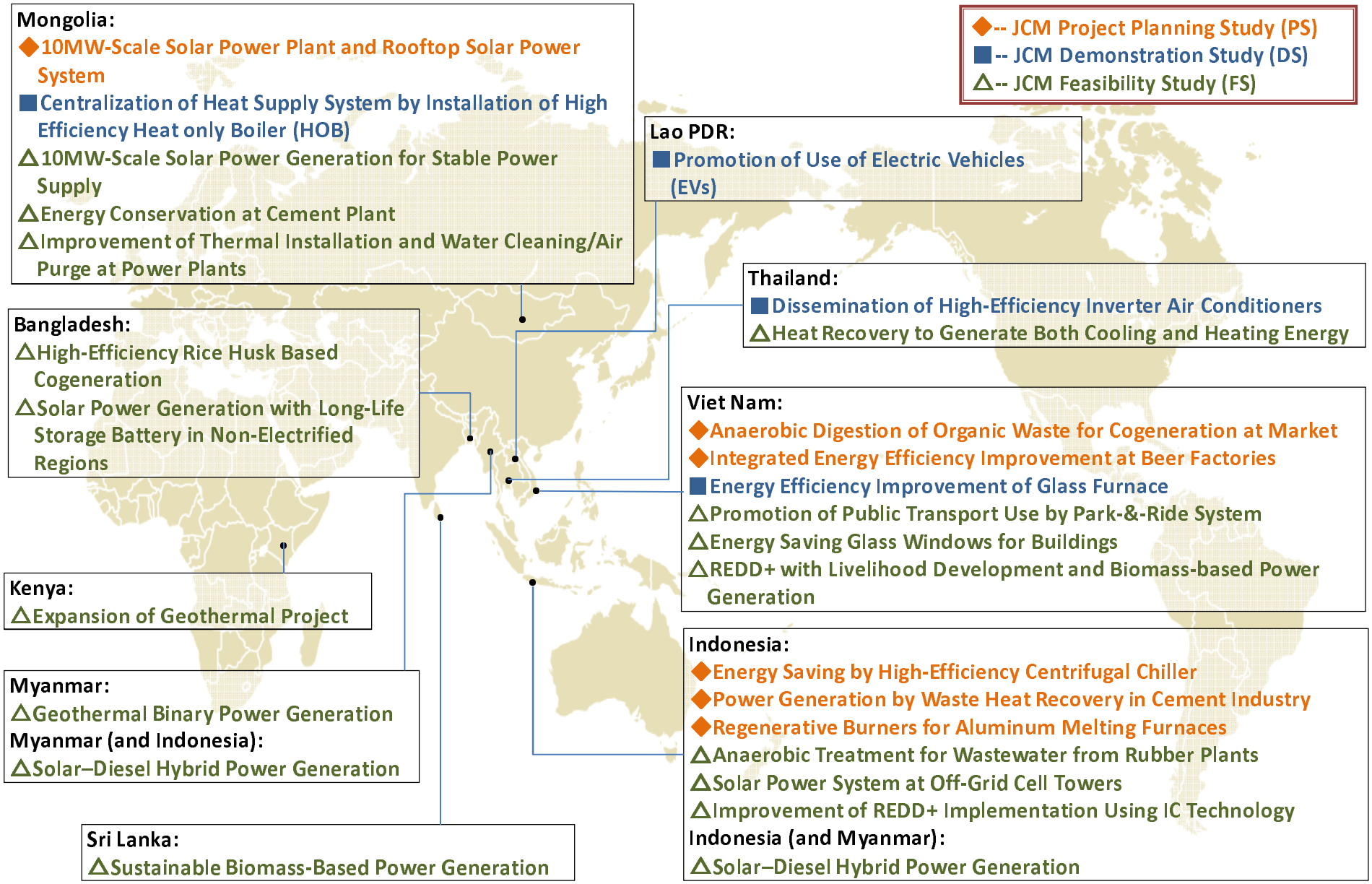
Available at GEC (Global Environment Centre Foundation) website <URL: http://gec.jp >



Outreach

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

Overview of JCM Planning/Demonstration/Feasibility Studies in 2013 by MOEJ



◆-- JCM Project Planning Study (PS)
■-- JCM Demonstration Study (DS)
△-- JCM Feasibility Study (FS)

Mongolia:
- ◆10MW-Scale Solar Power Plant and Rooftop Solar Power System
- ■Centralization of Heat Supply System by Installation of High Efficiency Heat only Boiler (HOB)
- △10MW-Scale Solar Power Generation for Stable Power Supply
- △Energy Conservation at Cement Plant
- △Improvement of Thermal Installation and Water Cleaning/Air Purge at Power Plants

Lao PDR:
- ■Promotion of Use of Electric Vehicles (EVs)

Thailand:
- ■Dissemination of High-Efficiency Inverter Air Conditioners
- △Heat Recovery to Generate Both Cooling and Heating Energy

Bangladesh:
- △High-Efficiency Rice Husk Based Cogeneration
- △Solar Power Generation with Long-Life Storage Battery in Non-Electrified Regions

Viet Nam:
- ◆Anaerobic Digestion of Organic Waste for Cogeneration at Market
- ◆Integrated Energy Efficiency Improvement at Beer Factories
- ■Energy Efficiency Improvement of Glass Furnace
- △Promotion of Public Transport Use by Park-&-Ride System
- △Energy Saving Glass Windows for Buildings
- △REDD+ with Livelihood Development and Biomass-based Power Generation

Kenya:
- △Expansion of Geothermal Project

Indonesia:
- ◆Energy Saving by High-Efficiency Centrifugal Chiller
- ◆Power Generation by Waste Heat Recovery in Cement Industry
- ◆Regenerative Burners for Aluminum Melting Furnaces
- △Anaerobic Treatment for Wastewater from Rubber Plants
- △Solar Power System at Off-Grid Cell Towers
- △Improvement of REDD+ Implementation Using IC Technology

Indonesia (and Myanmar):
- △Solar–Diesel Hybrid Power Generation

Myanmar:
- △Geothermal Binary Power Generation

Myanmar (and Indonesia):
- △Solar–Diesel Hybrid Power Generation

Sri Lanka:
- △Sustainable Biomass-Based Power Generation

Financing Programme for JCM Model Projects by MOEJ

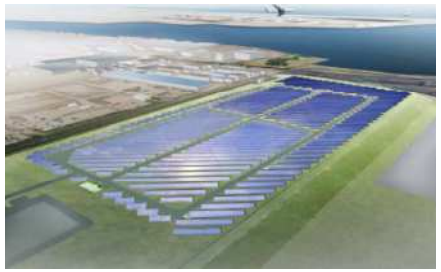
The budget for FY 2014
*1.2 billion JPY (approx. **USD12 million**) per year by FY2016*
(total 3.6 billion JPY)

Japan

Finance part of an investment cost (**up to the half**)

Conduct MRV and expected to deliver JCM credits

International consortiums
(which include Japanese entities)



- Scope of the financing: facilities, equipment, vehicles, etc. which reduce CO_2 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 Model Projects in 2013 by MOEJ

Mongolia:

◆ **Upgrading and Installation of Centralized Control System of High-Efficiency Heat Only Boiler (HOB)**

The high-efficiency Heat Only Boilers (HOBs) will replace outdated low-efficiency HOBs, to supply heated water for winter indoor heating. The project will also introduce centralized control system for the integrated heat supply in collective buildings.

Bangladesh:

◆ **Brick Production based on Non-Firing Solidification Technology**

In place of the existing brick production with the firing process with the combustion of coal, the new brick production with the non-firing solidification technology will be introduced.

Viet Nam:

◆ **Integrated Energy Efficiency Improvement at Beer Factory**

A set of high performance equipment for energy efficiency improvement and renewable energy generation will be introduced in beer factories. Before the installation, the potential of energy saving and possible high potential points in the beer production process will be identified by using the energy structure analysis simulation technology.

◆ **Energy Efficient NH3 Heat Pumps to Marine Products Processing Industry**

The high efficient heat pump using ammonia (NH3) as a refrigerant will be introduced to save their energy consumptions.

Cambodia:

◆ **Small-scale Biomass Power Generation by Using Stirling Engines**

The introduction of small-scale biomass power generation systems with stirling engines will replace diesel-based power generation at rice mills. The stirling engine, external-combustion engine, is suitable for the utilisation of biomass such as rice husk.

Indonesia:

◆ **Energy Saving for Air-Conditioning and Process Cooling at Textile Factory (in Batang city)**

The high performance refrigerating machine with efficient compressor and economizer cycle will be introduced for factory air-conditioning.

◆ **Energy Savings at Convenience Stores**

The latest high-efficiency chillers with natural refrigerant (CO2 refrigerant), inverter-controlled air-conditioners, and LED lighting will be introduced in convenience stores. Rooftop photovoltaic power generation systems will also be introduced.

◆ **Energy Efficient Refrigerants to Cold Chain Industry**

The advanced energy efficient non-fluorocarbon cooling system using NH3 and CO2 will be introduced in the food industry and logistics industry. A screw compressor and an IPM (interior permanent magnet synchronous) motor are adopted and operated integrally, to achieve high efficient operation of the cooling facility.

◆ **Energy Saving by Double Bundle-Type Heat Pump at Beverage Plant**

A double bundle-type heat pump, generating both heating and cooling energy, will be installed to reduce energy consumption.

◆ **Energy Saving for Air-Conditioning and Process Cooling at Textile Factory (in West Java province & Banteng province)**

The high performance refrigerating machine with efficient compressor and economizer cycle will be introduced for factory air-conditioning.

New Support Program Enabling "Leapfrog" Development (Fund/ADB)

Fund for expansion of low-carbon technologies

Budget for FY 2014

4.2 billion JPY (approx. USD42 million)

Scheme

To finance the projects which have the better efficiency of reducing GHG emission in collaboration with other projects supported by JICA and other national organizations

Purpose

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

Budget for FY 2014

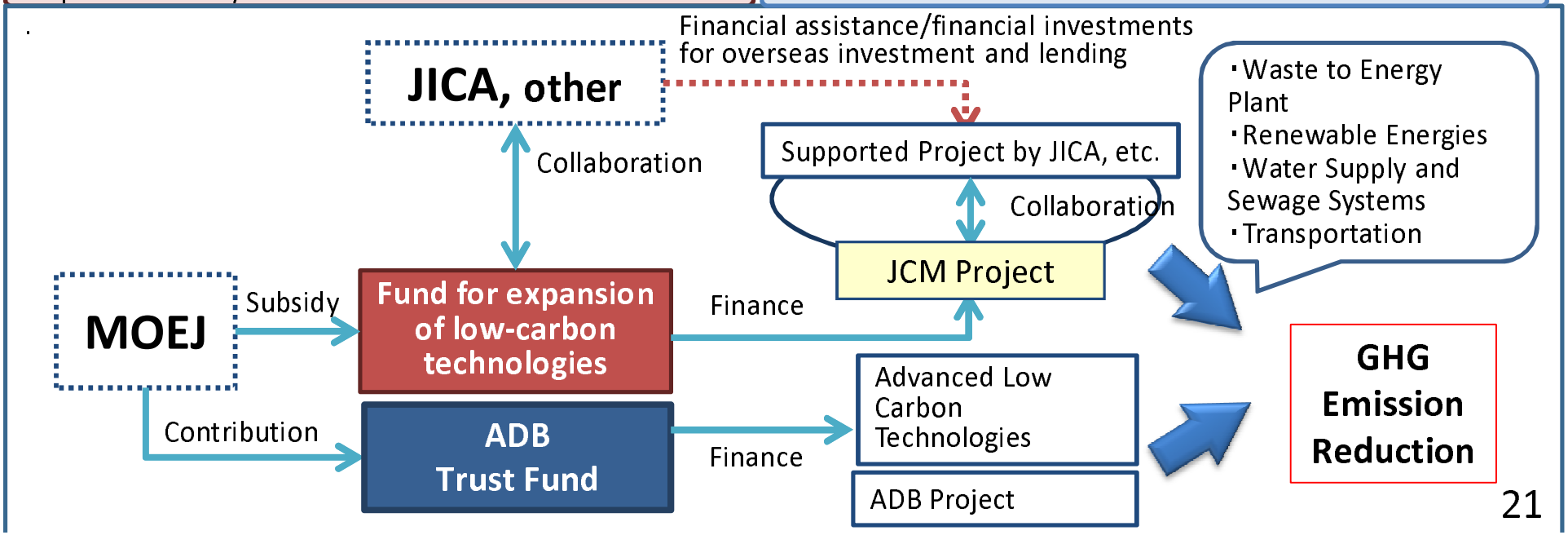
1.8 billion JPY (approx. USD18 million)

Scheme

To provide the financial incentives for the adoption of the advanced low-carbon technologies which are superior in GHG emission reduction but expensive in ADB- financed projects

Purpose

To develop ADB projects as the "Leapfrog" developments by the advanced technologies and to show the effectiveness of the JCM scheme by the acquisition of credits of the JCM.



4. Supporting systems for policy implementation

Workshop on Greenhouse Gas Inventories in Asia (WGIA)
- Capacity building for Measurability, Reportability and Verifiability -

Objective:	To support countries in Asia to improve the quality of inventories via regional information exchange ・To enhance sector-specific capacity for inventory compilation (mutual learning) ・To facilitate periodical national GHG inventory preparation for national communications (NCs) and biennial update reports (BURs) ・To discuss the possibility of inventories as a supporting tool for mitigation measures/NAMAs ・To explore issues on measurability, reportability and verifiability (MRV) at various levels
Organizers:	Ministry of the Environment of Japan National Institute for Environmental Studies
Participating countries:	Cambodia, China, India, Indonesia, Japan, Republic of Korea, Lao P.D.R., Malaysia, Mongolia, Myanmar, Philippines, Singapore, Thailand, Vietnam (14 countries)
Style:	Annual workshop since 2003
Funds:	Ministry of the Environment of Japan

WGIA On-going Meetings

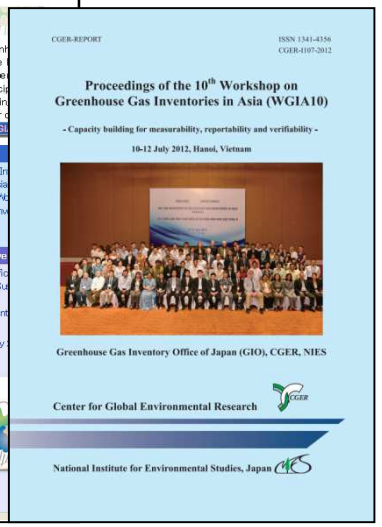
2003	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
WGIA1 Thailand	WGIA2 China	WGIA3 Philippines	WGIA4 Indonesia WGIA5 Malaysia	WGIA6 Japan	WGIA7 Republic of Korea	WGIA8 Lao PDR	WGIA9 Cambodia	WGIA10 Vietnam	WGIA11 Japan	**WGIA12 Thailand** (confirmed)

August 4-6

WGIA1 (2003)

WGIA10 (2012)

Website



Proceedings

Thank you!

New Mechanisms Information Platform

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

International Environmental Cooperation
Toward Sustainable Development, MOEJ

http://www.env.go.jp/earth/coop/coop/english/