

# Japan's support for mitigation actions and Introduction of the Joint Crediting Mechanism (JCM)

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# Outline

1. Experience developing NAMAs in a MRV manner under the MOEJ\* Programme
2. The Joint Crediting Mechanism (JCM) –a driver to implement NAMAs with technology, finance, and capacity-building –
3. Capacity-building activities and the New Mechanism Information Platform

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# Background of Japan's initiatives

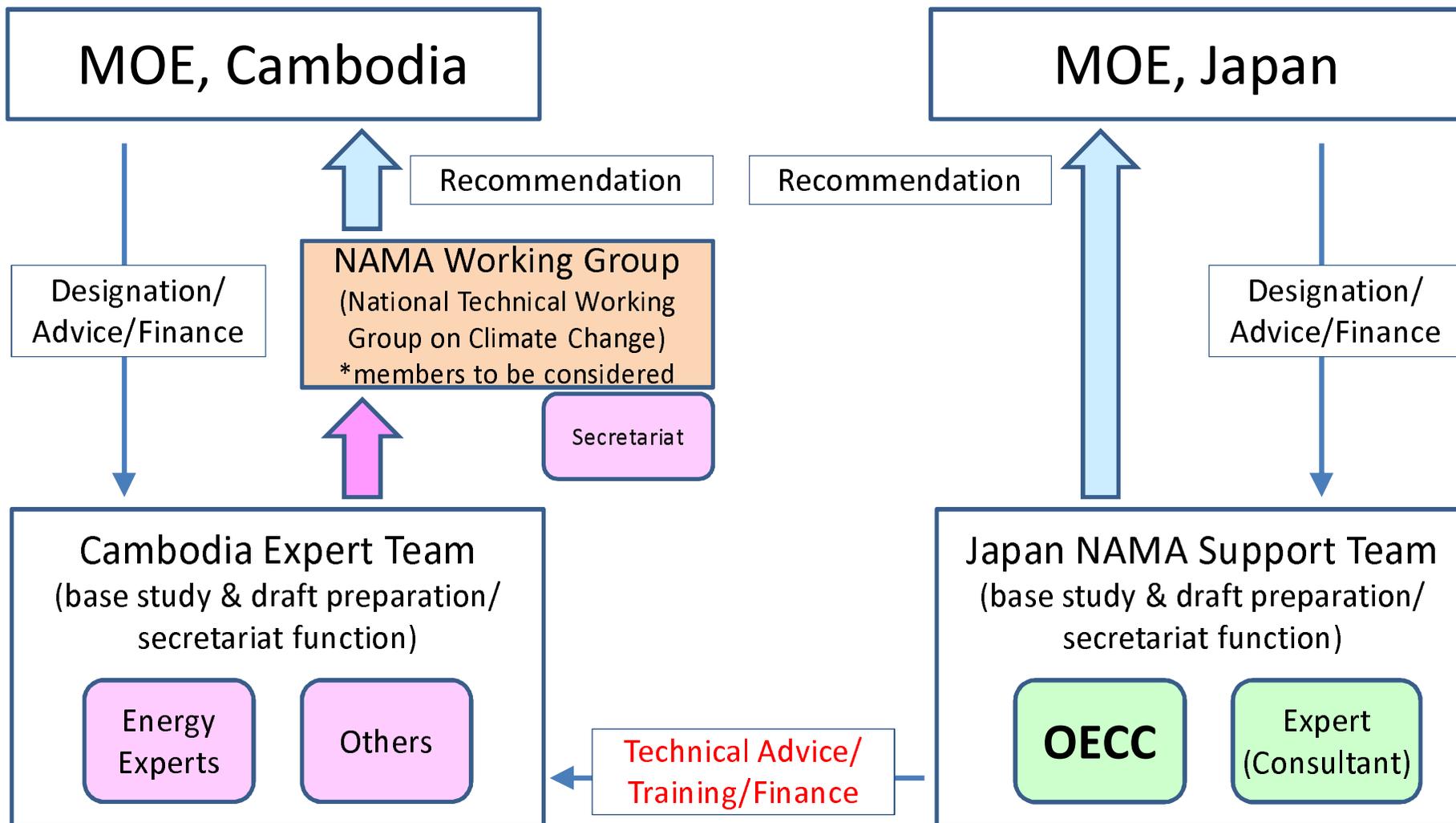


In 2007, COP13 decided to start consideration on nationally appropriate mitigation actions (NAMAs) by developing countries in a measurable, reportable, and verifiable (MRV) manner, supported by technologies, financing, and capacity-building, backed by the Copenhagen Accord, the Cancun Agreement, and the Durban Platform.

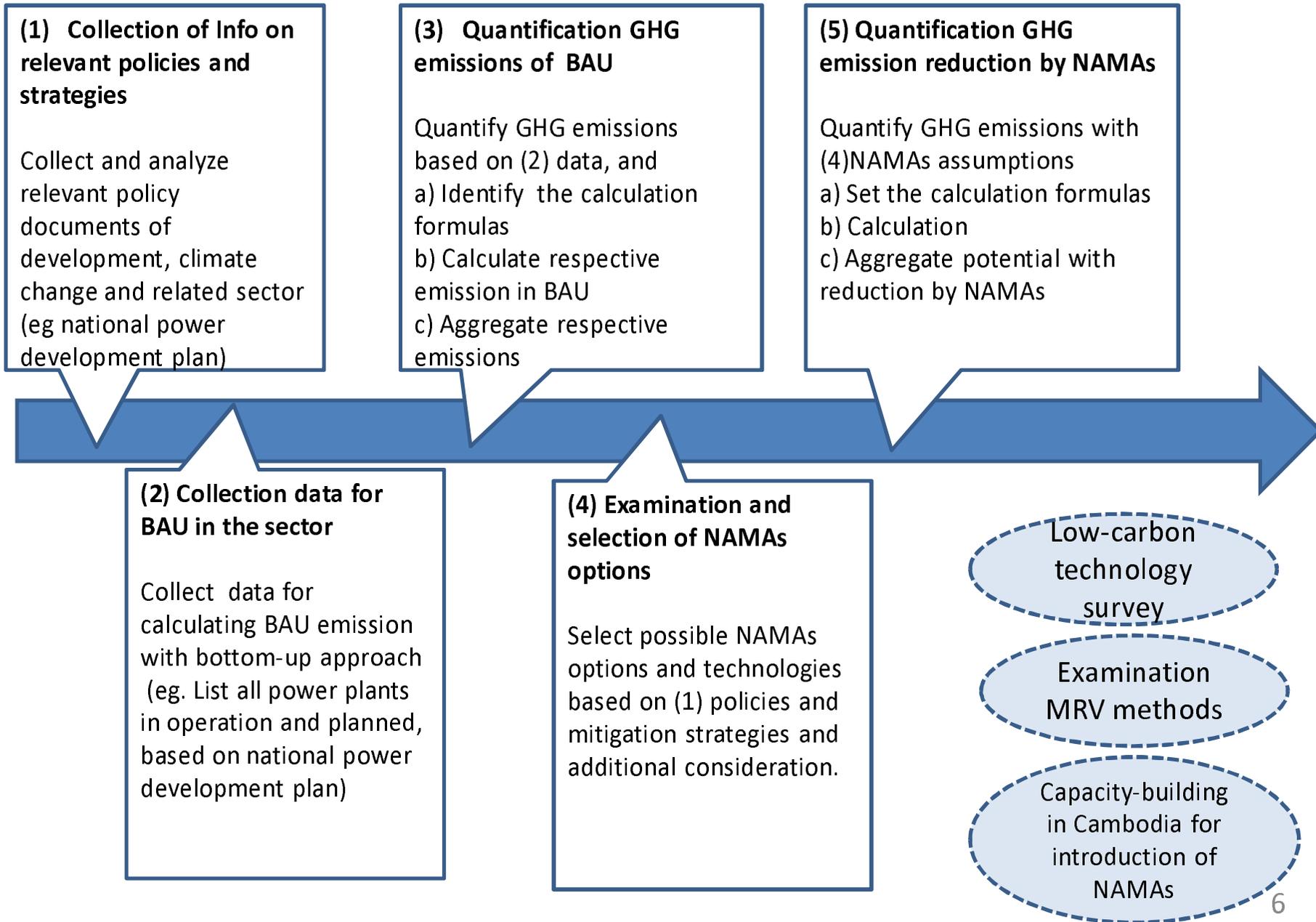
The Japanese government supports developing countries in their efforts to mitigate the effects of climate change, through several initiatives such as 1) capacity building for NAMAs, and 2) introduction of the Joint Crediting Mechanism (JCM).

In the case of NAMAs, the Ministry of Environment of host countries and the Ministry of the Environment, Japan (MOEJ), have decided to cooperate on capacity building and joint studies for the introduction of NAMAs in a MRV manner through the Overseas Environmental Cooperation Center, Japan (OECC).

# Collaborative framework



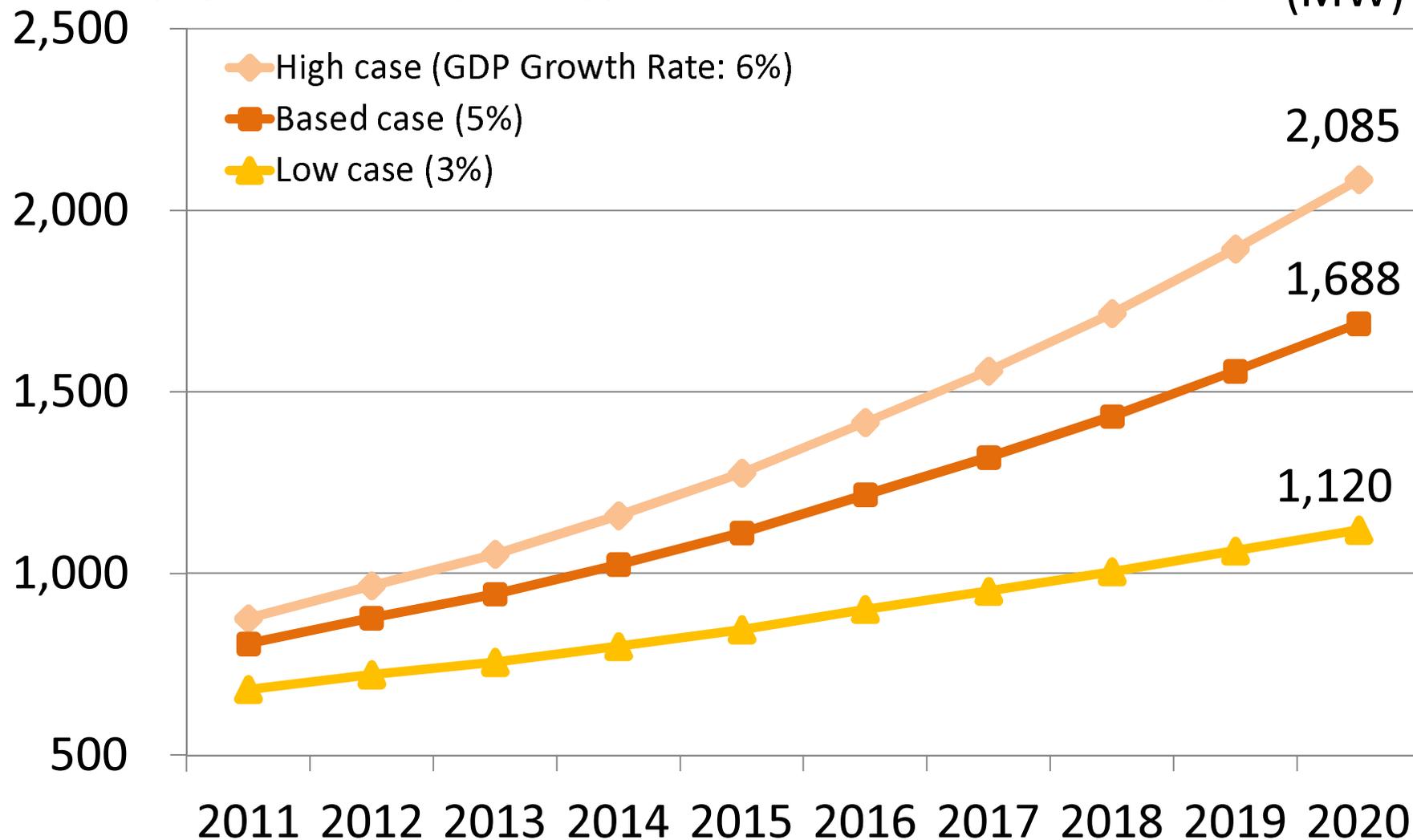
# Proposed steps for NAMA development



# BAU: Energy demand projection in Cambodia



In case where sectoral development strategies is available, such information may be useful for projection a priori. (If not, application of model should be necessary) (MW)



# BAU: Power development plan in Cambodia



\*Need to consider projects which may be developed in BAU out of the present plan.

No.	Project Name	Type	Capacity (MW)	Year	Condition as of Dec. 2011
1	XXXX	Heavy Fuel Oil	340	-	Operating
2	YYYY	Coal	13	-	
3	ZZZZ	Hydro	13	-	
4	AAAA	Wood, Biomass	6	-	
5	Kamchay	Hydro	194	2012	Under Construction
6	Kirirom III	Hydro	18	2012	
7	Stung Atay	Hydro	120	2012	
8	Stung Tatay	Hydro	246	2013	
9	Lower Stung Russei Churum	Hydro	338	2013	
10	100 MW Coal Fired Power Plant	Coal	100	2013	PPA signed
11	270 MW Phase 1 of the 700MW Coal Fired Power Plant	Coal	270	2014 ~2015	
12	100 MW Coal Fired Power Plant	Coal	100	2016	
13	430 MW Phase 2 of the 700MW Coal Fired Power Plant	Coal	430	2017	FS completed
...	...	Coal	$\alpha^*$	20XX	May be developed*
	Total		2188+ $\alpha$		

# Power development plan with mitigation options



No.	Project Name	Type	Capacity (MW)	Year
1	XXXX	Heavy Fuel Oil	340	
2	YYYY	Coal	13	-
3	ZZZZ	Hydro	13	-
4	AAAA	Wood, Biomass	6	-
5	Kamchay	Hydro	194	2012
6	Kirirom III	Hydro	18	2012
7	Stung Atay	Hydro	120	2012
8	Stung Tatay	Hydro	246	2013
9	Lower Stung Russei Churum	Hydro	338	2013
10	100 MW Coal Fired Power Plant	Coal	100	2013
11	270 MW Phase 1 of the 700MW Coal Fired Power Plant	Coal	270	2014 ~2015
12	100 MW Coal Fired Power Plant	Coal	100	20
13	430 MW Phase 2 of the 700MW Coal Fired Power Plant	Coal	430	2017
...	...	Coal	$\alpha^*$	20XX
	Total		2188+ $\alpha$	

**Introduction of high-performance boiler**

**Promotion of renewable energy (hydro, solar, biomass)**

## Quantifying GHG Emissions Reduction

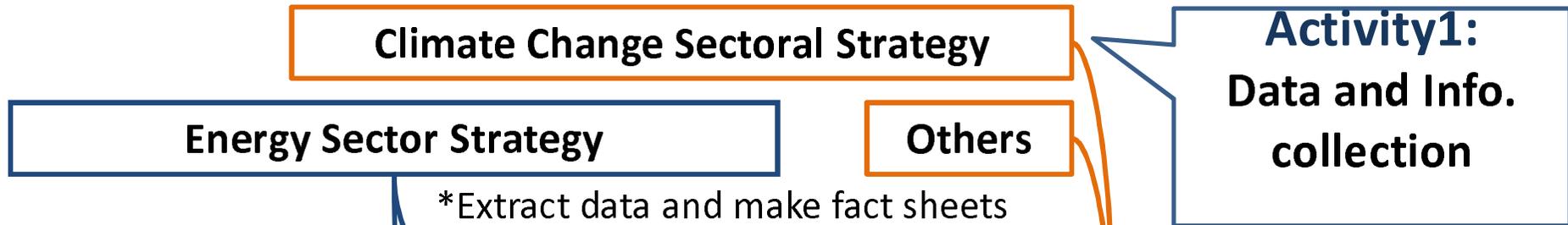


Fig 1. Energy Development Plan in BAU and NAMAs

	2012	2020
<b>BAU</b>	XXX MWh	X,XXX MWh
<b>NAMAs</b>	-	X,XXX MWh

Fig 2. GHG Emissions in BAU and NAMAs

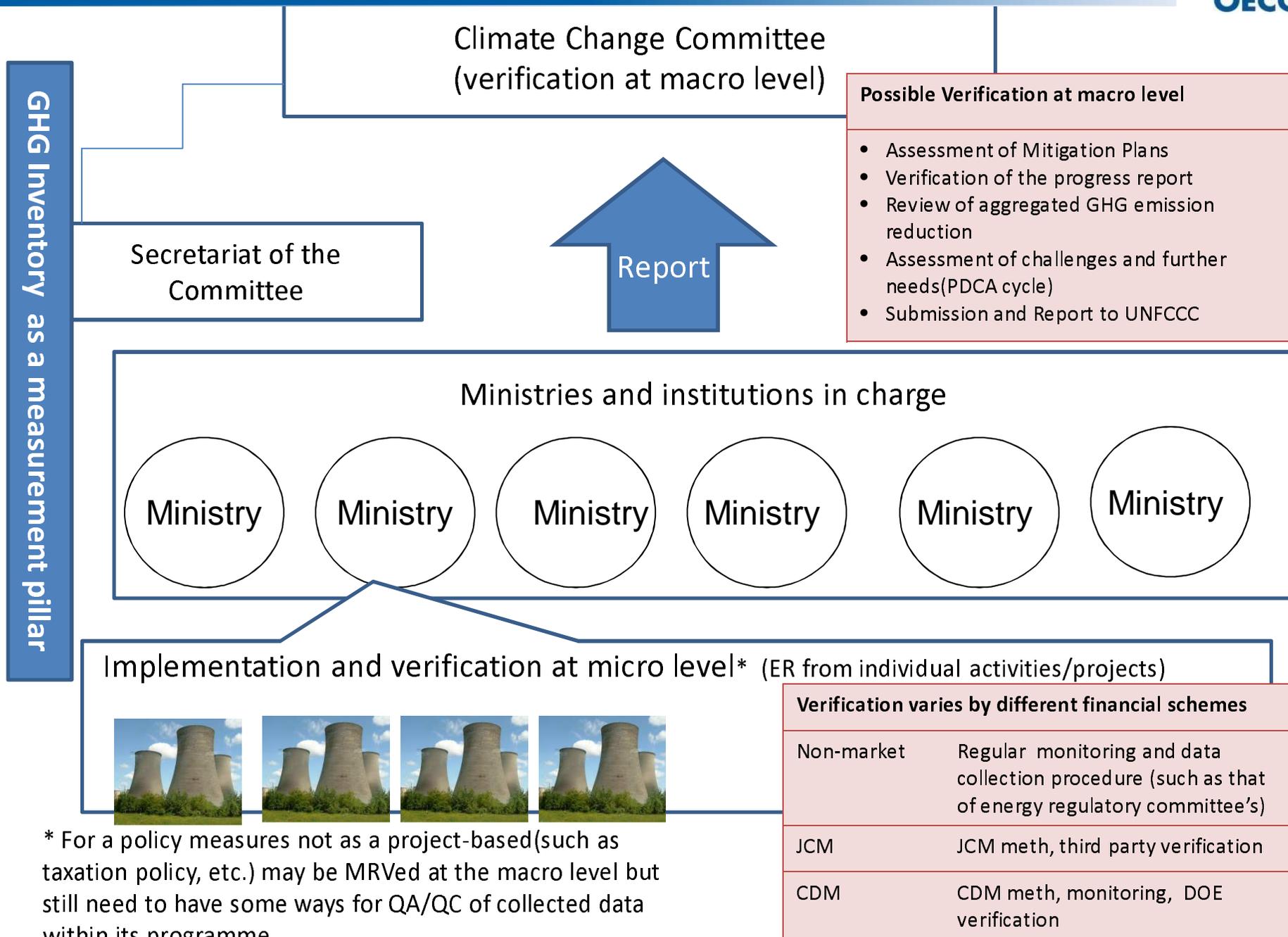
	2012	2020
<b>BAU</b>	XXX t-CO <sub>2</sub>	X,XXX t-CO <sub>2</sub>
<b>NAMAs</b>	-	X,XXX t-CO <sub>2</sub>

**Activity 2:**  
GHG Emissions Calculation

**Activity 3:**  
Identify Mitigation Action

- XX MW Solar
- XX units Boilers

# Preparing for domestic institutional arrangement



- Possible Verification at macro level**
- Assessment of Mitigation Plans
  - Verification of the progress report
  - Review of aggregated GHG emission reduction
  - Assessment of challenges and further needs (PDCA cycle)
  - Submission and Report to UNFCCC

**Verification varies by different financial schemes**

Non-market	Regular monitoring and data collection procedure (such as that of energy regulatory committee's)
JCM	JCM meth, third party verification
CDM	CDM meth, monitoring, DOE verification

# List of outputs



	As indicated in the MOU	Outputs / Results
1	Identify BAU and NAMA Scenarios	<i>Quantification of GHG emissions in BAU and emissions reduction by NAMA</i>
2	A <u>draft</u> implementation plan for NAMAs	<i>Provided a list of NAMA alternatives with consideration of MRV criteria. NAMA: "Promotion of Biodigester"</i>
3	A <u>draft</u> implementation plan for MRV of NAMA	<i>Proposed an Implementation Plan for MRV and NAMA (under discussion)</i>
4	Proposal of a modalities for domestic institutional arrangement for NAMA implementation	<i>Proposed Institutional Arrangement for NAMA implementation</i>
5	Provide a menu of appropriate mitigation technologies	<i>Provided a List up Environmental Technologies in relation to NAMA selections. Conducted an Environmental Mission (private sector)</i>

# Cambodia



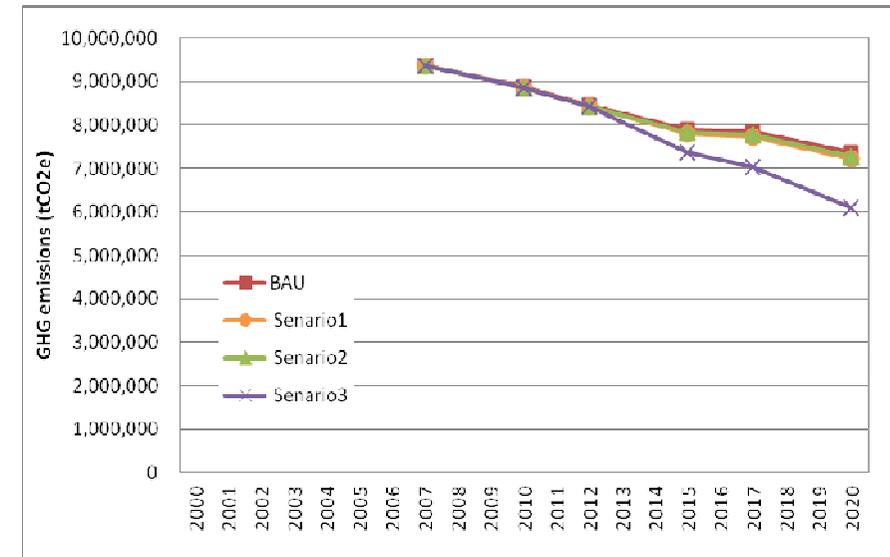
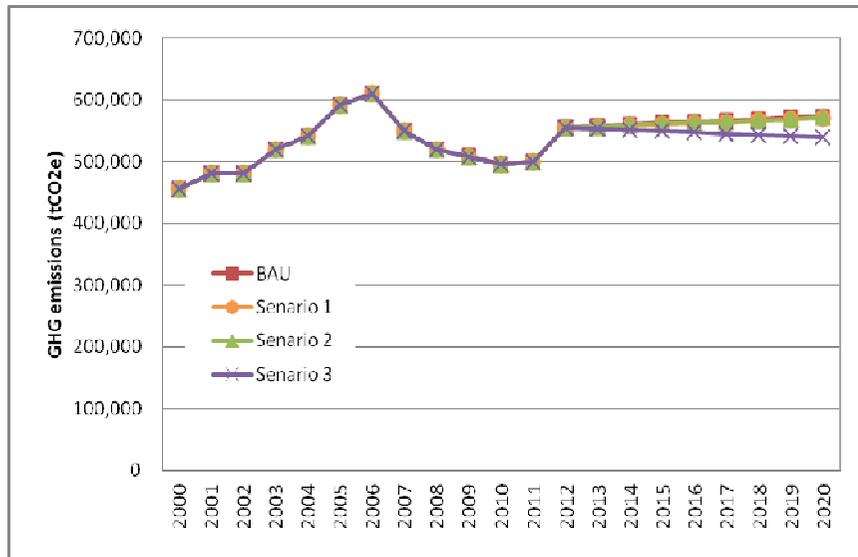
Selected Sector: Agricultural Sector

NAMAs: National Bio digester Programme

Working Group: MOE, MPWT, MIME chaired by MOE DG

Results:

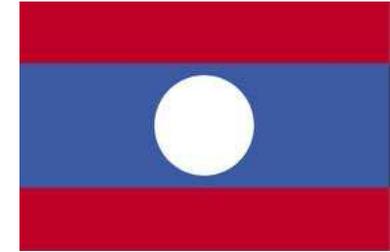
- Calculated BAU and ER by NAMAs ex ante (Emission Reductions from Methane Reduction and NRB)
- Sorted out reporting procedure



CH4 Emission from animal manure and its Reduction by biodigester Programme

CO2 reduction from non renewable biomass by different fuels

# Lao PDR

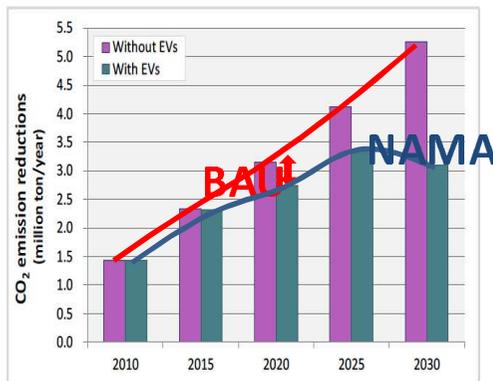


Selected Sector: Transport Sector

NAMAs: Replacement of conventional vehicle with EV

Working Group: 7 Ministries participates, including MONRE, MPWT, MIME, MOIC, MOST, chaired by Results:

- Calculated BAU and ER by NAMAs ex ante
- Activity data (fuel economy data) originally collected and based on JICA Study
- Proposed institutional arrangements are planned to be a part of technical WG under the National Climate Change Committee



Source: Basic Data Collection Study on Low-emission Public Transport System in Lao PDR, JICA, modified by OECC

	Motorcycle	Passenger car	Tuk Tuk / Mini bus	Song Thew / Middle size bus	Large bus	Total
<b>Baseline Emissions</b>						
Baseline fuel economy (km/liter)	40	13.0	20	6.5	2.5	
Baseline fuel economy (km/liter) (2020)	43.3	14.1	21.7	7.0	2.7	
Driving distance (km/day)	16	25	45	85	120	
CO <sub>2</sub> emission factor (kgCO <sub>2</sub> /liter)	2.18	2.18	2.70	2.70	2.70	
Days per year	365	365	365	365	365	
Baseline emission (tCO <sub>2</sub> /year/vehicle)	0.3	1.4	2.0	11.9	43.8	
<b>Project Emissions</b>						
Driving distance (km/day)	16	25	45	85	120	
Project electricity economy (kWh/km)	0.080	0.130	0.130	0.310	1.000	
Grid electricity emission factor (tCO <sub>2</sub> /MWh)	0.135	0.135	0.135	0.135	0.135	
Days per year	365	365	365	365	365	
Project emission (tCO <sub>2</sub> /year/vehicle)	0.1	0.2	0.3	1.3	5.9	
<b>Emission reduction (tCO<sub>2</sub>/year/vehicle)</b>	<b>0.2</b>	<b>1.3</b>	<b>1.8</b>	<b>10.6</b>	<b>37.9</b>	
<b>Number of EV</b>	<b>698000</b>	<b>45000</b>	<b>12000</b>	<b>4000</b>	<b>1000</b>	
<b>Total Emission Reduction (tCO<sub>2</sub>/year)</b>	<b>161,204</b>	<b>56,280</b>	<b>21,065</b>	<b>42,537</b>	<b>37,887</b>	<b>318,973</b>

# Mongolia

Selected Sector: Energy Supply Sector

NAMAs: Improvement of CHP Plants

Working Group: MEDG, Ministry of Energy, other key institutes and experts, chaired by Climate Change Special Envoy

Results:

Calculated BAU and ER by NAMAs ex ante both for power and heat supplies for CHP3 and CHP4

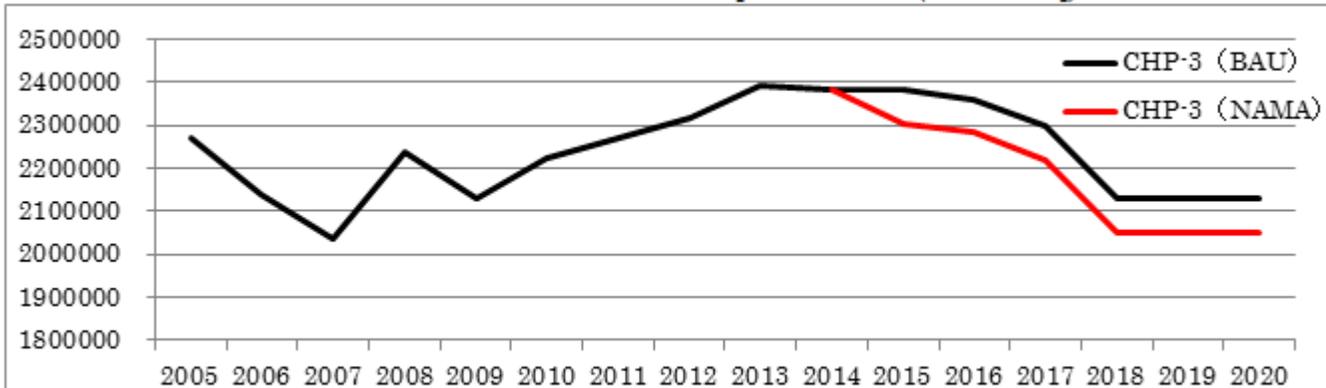
Sorted out reporting process of activity data (ie Energy Regulatory Committee)

Discussed technology options for application in NAMAs, including process diagnosis in CHP



Diagnosis by energy technology experts from Japan at CHP

GHG emissions in the BAU scenario and after NAMA implementation (ton-CO<sub>2</sub>eq)<sup>1</sup>



# Viet Nam



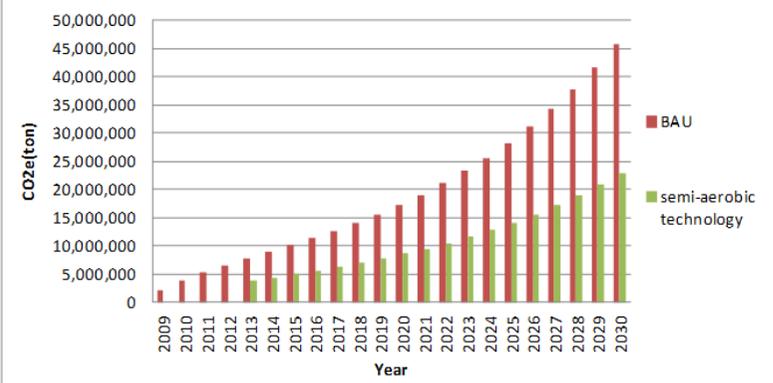
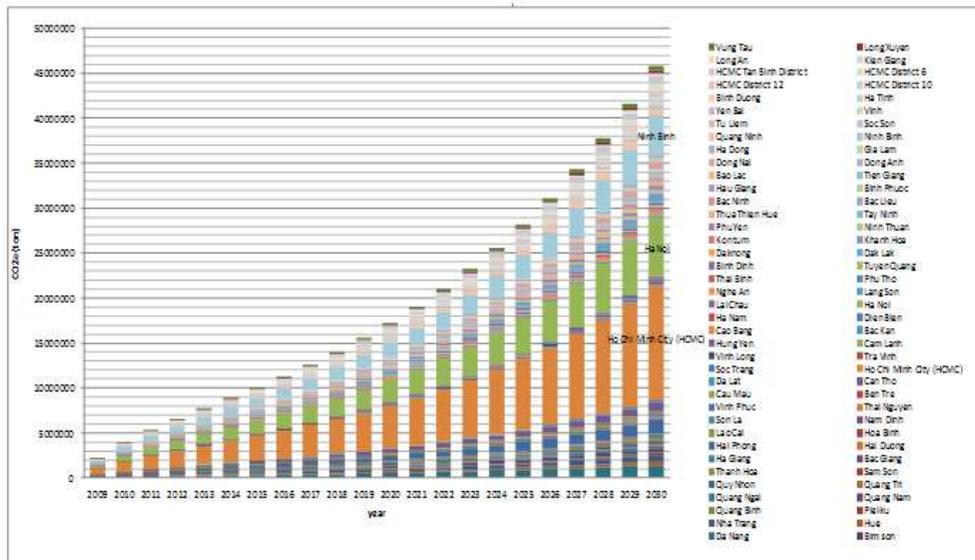
Selected Sector: Waste Sector

NAMAs: CH4 Reduction from Landfill (semi aerobic technology)

Working Group: MONRE, MOC, MPI, VEA, IMHEN, chaired by IMHEN

Results:

- Collected historical activity data from all landfills in Viet Nam
- Calculated BAU and reduction by NAMA candidates (Emission Reductions from Methane Emission from LFs)
- Discussed possible reporting procedures

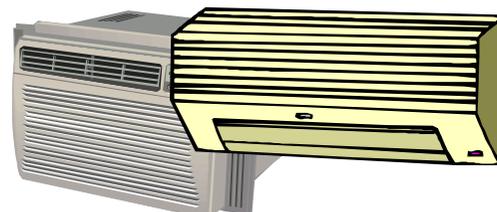


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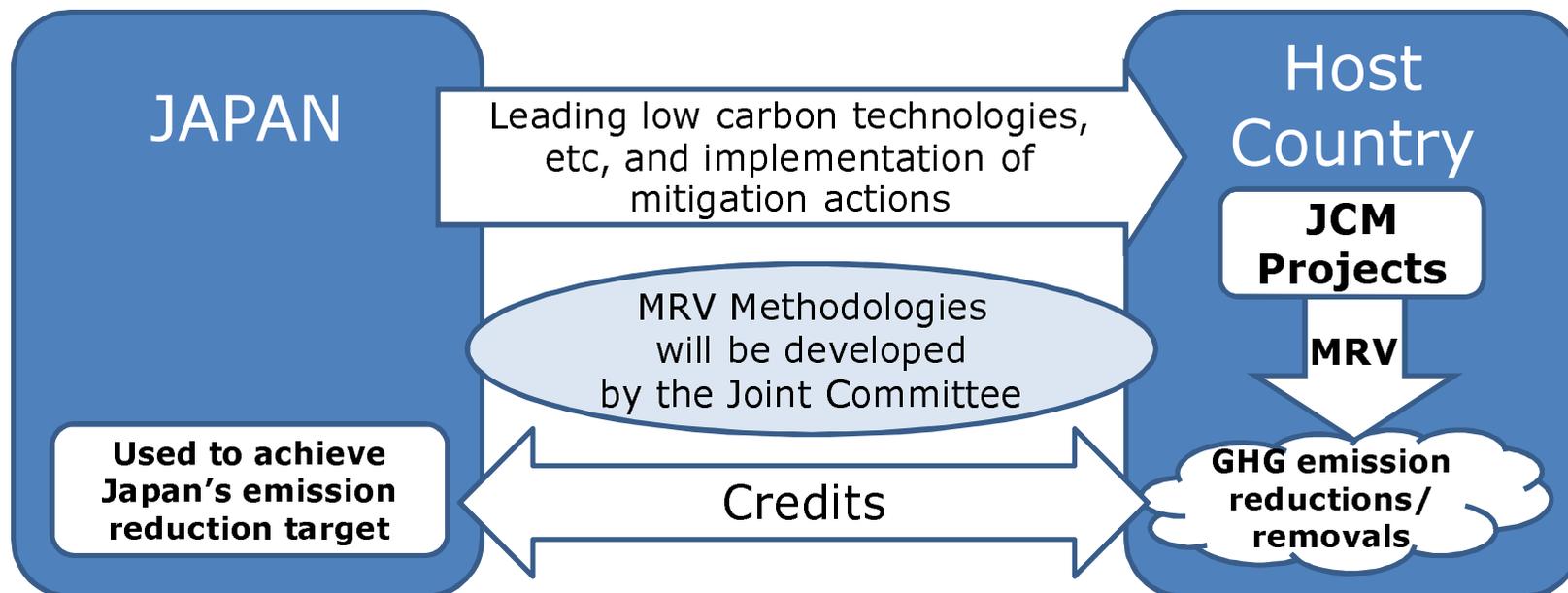
# Low-Carbon Growth

- In order to effectively address the issue of climate change, it is necessary for both developed and developing countries to achieve low-carbon growth all around the world by fully mobilizing technology, markets and finance.
- Widespread use of advanced low-carbon technologies and products in various fields including renewable energy, highly efficient power generation, home electronics, low-emission vehicles, and energy-savings in factories must be accelerated.
- Realizing a low carbon society by combining these technologies and products with appropriate systems, services, and infrastructure is also crucial.

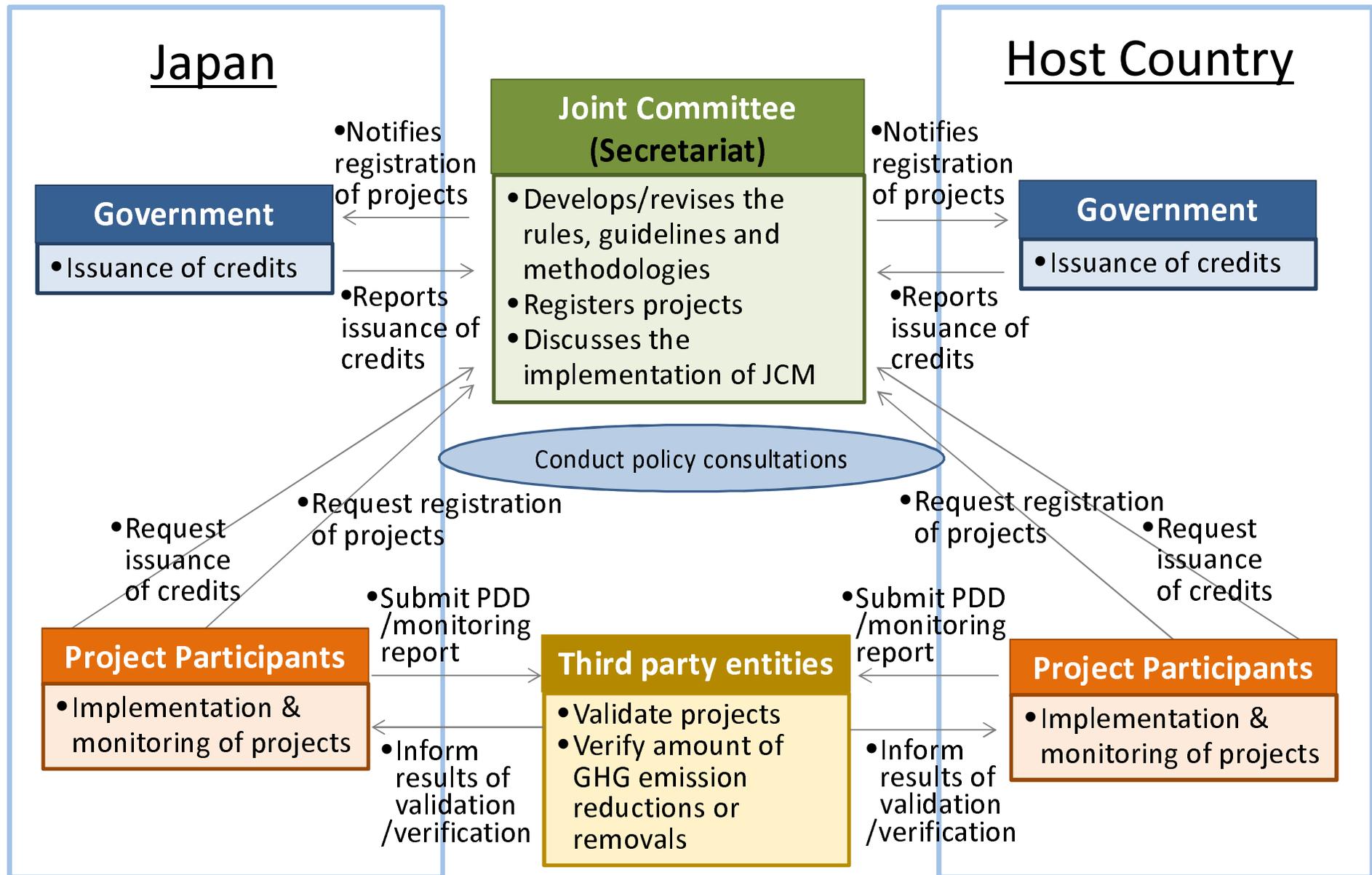


## Basic Concept of the JCM

- 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



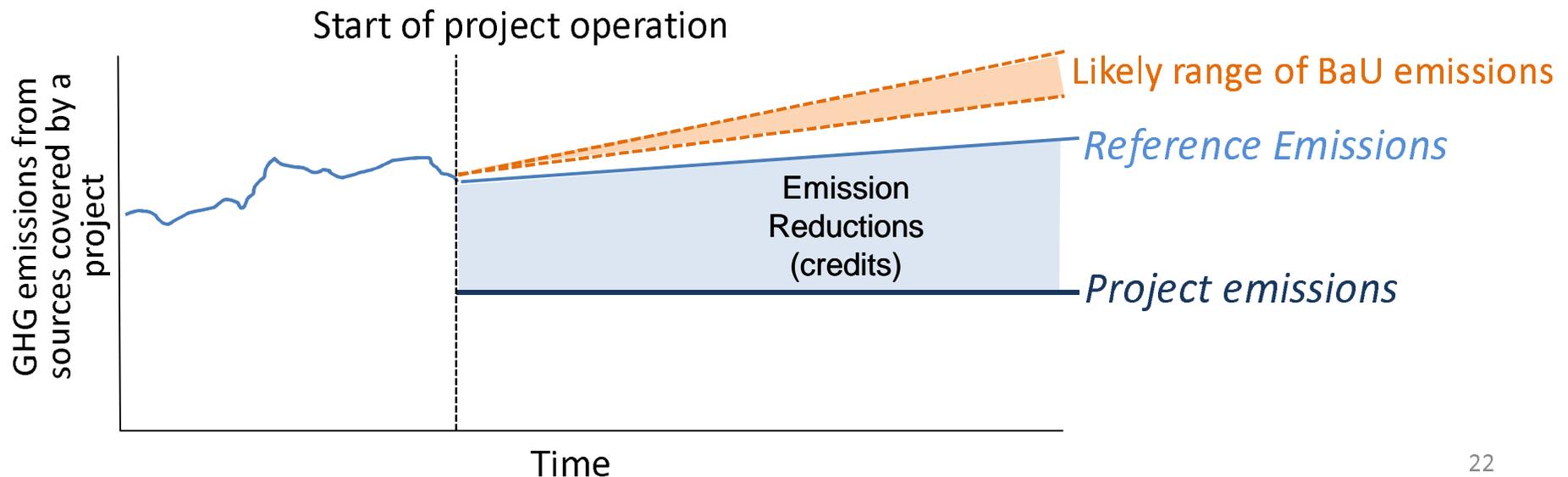
## The role of the Joint Committee and each Government

- The Joint Committee (JC) consists of representatives from both Governments.
- The JC develops rules and guidelines necessary for the implementation of the JCM.
- The JC determines either to approve or reject the proposed methodologies, as well as develops JCM methodologies.
- The JC designates the third-party entities (TPEs).
- The JC decides on whether to register JCM projects which have been 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.

# Basic Concept for Crediting under the JCM

(Subject to further consideration and discussion with host countries)

- In the JCM, emission reductions to be credited are defined as the difference between “reference emissions” and project emissions.
- The reference emissions are calculated below business-as-usual (BaU) emissions which represent plausible emissions in providing the same outputs or service level of the proposed JCM project in the host country.
- This approach will ensure a net decrease and/or avoidance of GHG emissions.



## Approaches of the JCM

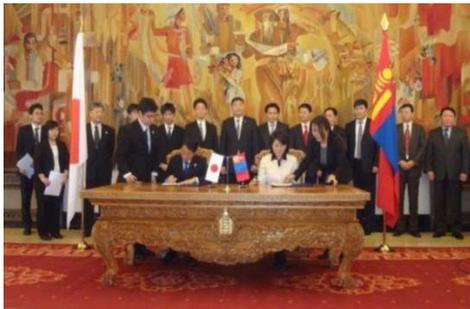
- The JCM should be designed and implemented, taking into account the followings:
  - (1) Ensuring the robust methodologies, transparency and the environmental integrity;
  - (2) Maintaining simplicity and practicality based on the rules and guidelines;
  - (3) Promoting concrete actions for global GHG emission reductions or removals;
  - (4) Preventing uses of any mitigation projects registered under the JCM for the purpose of any other international climate mitigation mechanisms to avoid double counting on GHG emission reductions or removals.

## Features of the JCM

- (1) The JCM starts its operation as a non-tradable credit type mechanism.
- (2) Both Governments continue consultation for the transition to the tradable credit type mechanism and reach a conclusion at the earliest possible timing, taking account of implementation of the JCM.
- (3) The JCM aims for concrete contributions to assisting efforts of developing countries after the JCM is converted to the tradable credit type mechanism.
- (4) The JCM covers the period until a possible coming into effect of a new international framework under the UNFCCC.

## 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 and Indonesia.



Mongolia  
On January 8, 2013  
(Ulaanbaatar)



Bangladesh  
On March 19, 2013  
(Dhaka)



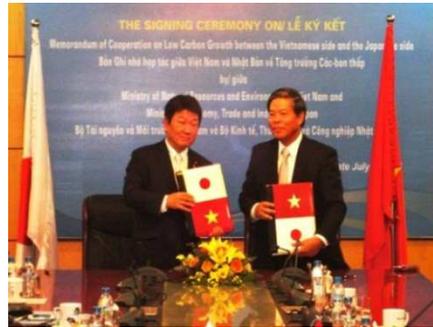
Ethiopia  
On May 27, 2013  
(Addis Ababa)



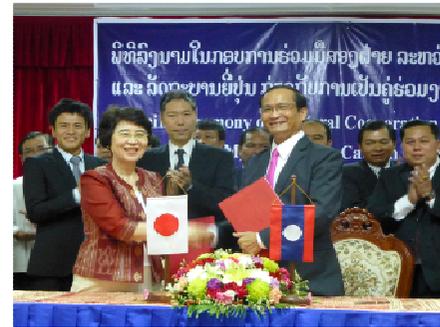
Kenya  
On June 12, 2013  
(Nairobi)



Maldives  
On June 29, 2013  
(Okinawa)



Viet Nam  
On July 2, 2013  
(Hanoi)



Lao PDR  
On August 7, 2013  
(Vientiane)



Indonesia  
On August 26, 2013  
(Jakarta)

- Japan held the 1st Joint Committee with Mongolia, Bangladesh, Ethiopia and Kenya respectively.

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## Capacity Building Activities by MOEJ (1/2)

- Starting from 2003, MOEJ has been implementing **CDM capacity building programme** in Asian countries to develop institutional arrangements for the CDM.
  - **Institute for Global Environmental Strategies (IGES)** has been collaborating with Asian countries for capacity building.
- Building on the existing CDM capacity building activities, MOEJ launched capacity building for **MRV for the JCM**.
  - Such capacity building will be conducted in Asia, Latin America and Africa respectively, to reflect specific circumstances and capacities of those countries for implementing MRV.
- **New Mechanisms Information Platform** website was established by **Overseas Environmental Cooperation Center (OECC)** to provide the latest movements and information on the JCM.
  - URL is <http://www.mmechanisms.org/e/index.html>

# Capacity Building Activities by MOEJ (2/2)

**New Mechanisms Information Platform**

Inquiry | E-mail Newsletter | Japanese

Font Size: Standard | Big | Maximum: Site Search | Google Custom Search

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Japan's Initiatives | Support Programmes | Useful Experiences | Useful Calculation Methodology | REDD/REDD+



**The Joint Crediting Mechanism / Bilateral Offset Credit Mechanism (JCM/BOCM)**

Proposed Elements of the JCM/BOCM

Relevant Documents: Gov't of Japan | MOEJ | MOFA

Topics of Japan [List](#)

- Jan 9, 2013  
Japan and Mongolia signed the first JCM agreement
- May 19, 2012  
Fact Sheet: G8 Action on Energy and Climate Change (MOFA)
- Apr 16, 2012  
East Asia Low Carbon Growth Partnership Dialogue (MOFA)
- Apr 16, 2012  
Submission by Japan  
Future framework and work plan of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (MOFA)

Publications [List](#)

**New Mechanisms Express No.6**

- The New Mechanisms about to Be Launched Soon
- November 2012

Information [List](#)

- Nov 30, 2012  
"Reports of COP18/CMP8"

# Thank you for your attention!

Please visit:

The New Mechanisms Information Platform

( <http://www.mmechanisms.org/e/index.html> )



Miguel Jiro Ogahara

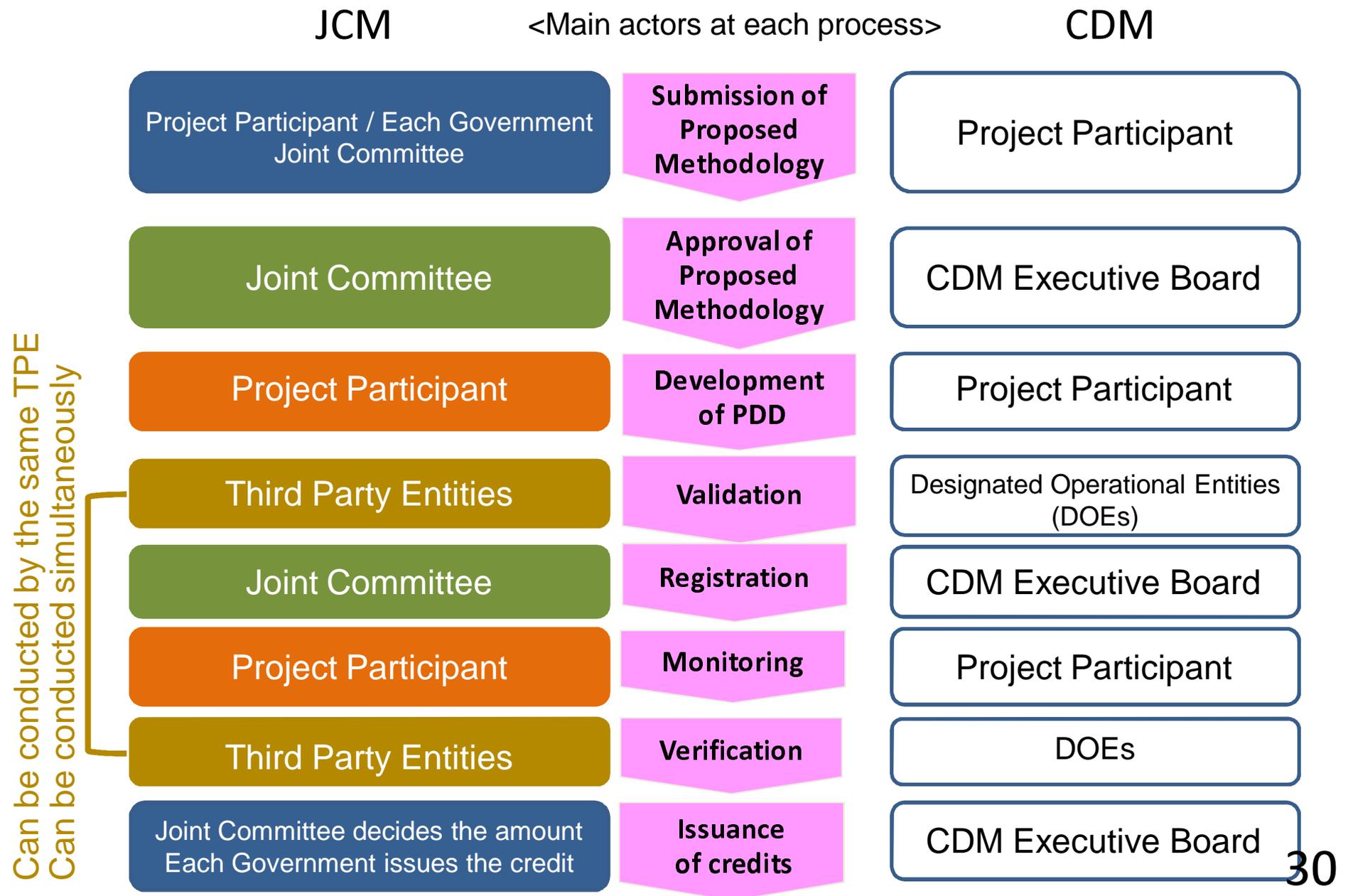
Overseas Environmental Cooperation Center, Japan

(OECC)

[ogahara@oecc.or.jp](mailto:ogahara@oecc.or.jp)



# Project Cycle of the JCM and the CDM

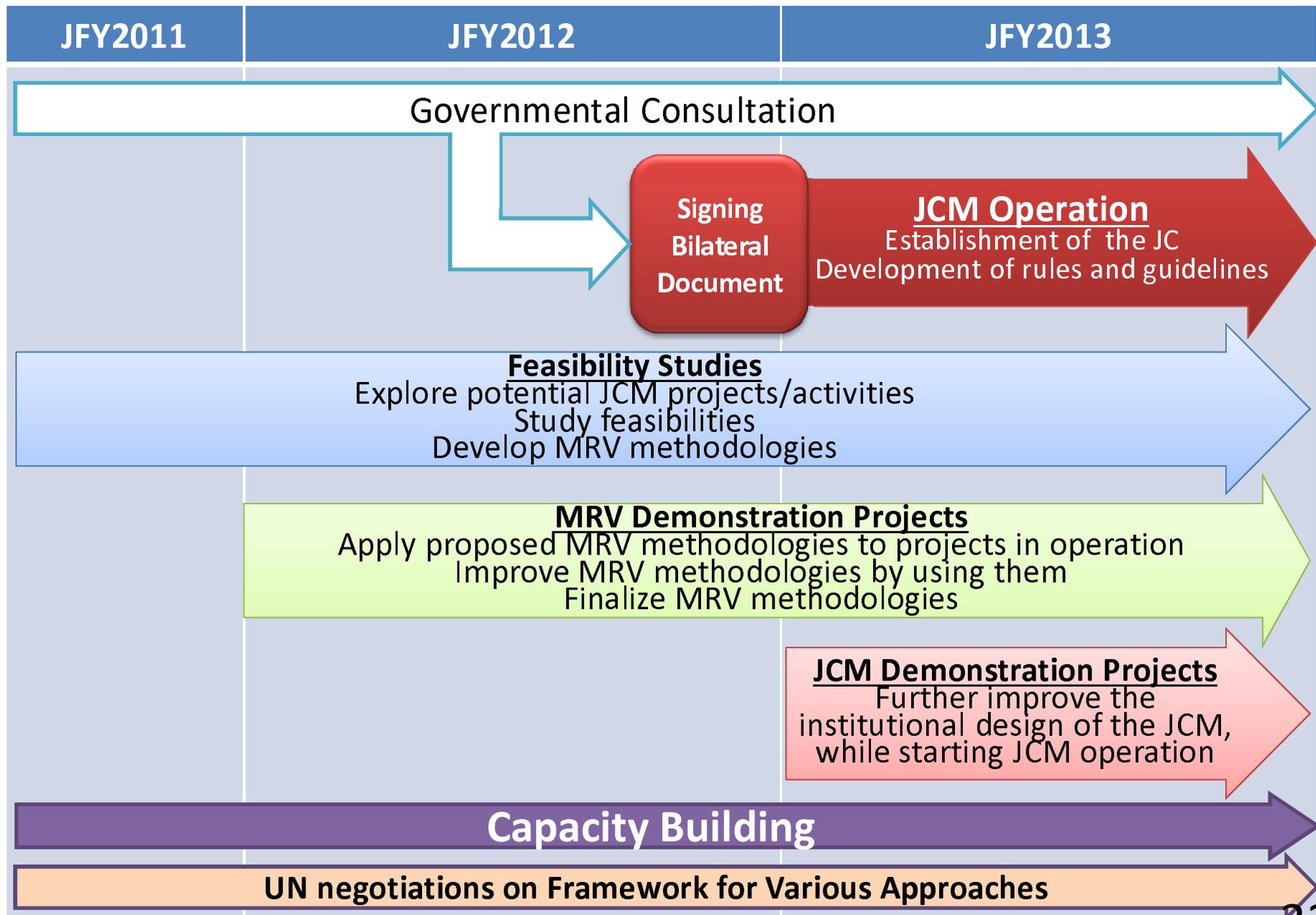


## Key features of the JCM in comparison with the CDM

(Subject to further consideration and discussion with host countries)

	JCM	CDM
Governance	- “de-centralized” structure (Each Government, Joint Committee)	- “centralized” structure (CMP, CDM Executive Board)
Sector/project Coverage	- Broader coverage	- Specific projects are difficult to implement in practice (e.g. USC coal-fired power generation)
Validation of projects	- In addition to DOEs, ISO14065 certification bodies can conduct - Checking whether a proposed project fits eligibility criteria which can be examined objectively	- Only DOEs can conduct - Assessment of additionality of each proposed project against hypothetical scenarios
Calculation of Emission Reductions	- Spreadsheet are provided - Default values can be used in conservative manner when monitored parameters are limited.	- Various formulas are listed - Strict requirements for measurement of parameters
Verification of projects	- The entity which validated the project can conduct verification - Validation & verification can be conducted simultaneously	- In principle, the entity which validated the project can not conduct verification - Validation & verification must be conducted separately

# Roadmap for the JCM



## Basic concept of Eligibility criteria in JCM methodology

(Subject to further consideration and discussion with host countries)

The eligibility criteria in each JCM methodology should be established, in order to reduce emissions by:

- accelerating the deployment of low carbon technologies, products and services, which will contribute to achieving net emission reductions;
- facilitating the nationally appropriate mitigation actions (NAMAs) in host countries.



1. Both Governments determine what technologies, products, etc should be included in the eligibility criteria through the approval process of the JCM methodologies by the Joint Committee.
2. Project participants can use the list of approved JCM methodologies, similar to positive list, when applying for the JCM project registration.