# Recent Development of The Joint Crediting Mechanism (JCM)

# December 2013 Government of Japan

All ideas are subject to further consideration and discussion with host countries

## 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.

# 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 the 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 adaptation 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.

# Project Cycle of the JCM and the CDM

	JCM <main< th=""><th>actors at each proc</th><th>cess&gt; CDM</th></main<>	actors at each proc	cess> CDM
	Project Participant / Each Government Joint Committee	Submission of Proposed Methodology	Project Participant
Can be conducted simultaneously	Joint Committee	Approval of Proposed Methodology	CDM Executive Board
	Project Participant	Development of PDD	Project Participant
	Third Party Entities	Validation	Designated Operational Entities (DOEs)
	Joint Committee	Registration	CDM Executive Board
	Project Participant	Monitoring	Project Participant
	Third Party Entities	Verification	DOEs
	Joint Committee decides the amount Each Government issues the credit	Issuance of credits	CDM Executive Board

# Key features of the JCM in comparison with the CDM

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



## 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 and Costa Rica.



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)



Costa Rica On December 9, 2013 (Tokyo)

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

## The current status of UNFCCC negotiation (1/2)

## Decision 1/CP18

- 41. Acknowledges that Parties, individually or jointly, may develop and implement various approaches, including opportunities for using markets and non-markets, to enhance the cost-effectiveness of, and to promote, mitigation actions, bearing in mind different circumstances of developed and developing countries;
- 42. *Re-emphasizes* that, as set out in decision 2/CP.17, paragraph 79, <u>all</u> <u>such approaches must meet standards that deliver real, permanent,</u> <u>additional and verified mitigation outcomes, avoid double counting of</u> <u>effort and achieve a net decrease and/or avoidance of GHG emissions;</u>
- 44. *Requests* the SBSTA to <u>conduct a work programme</u> to elaborate a framework for such approaches, drawing on the work of the AWG-LCA on this matter, including the relevant workshop reports and technical paper, and experience of existing mechanisms, with a view to recommending a draft decision to the COP for adoption at its 19th session;
- 45. *Considers* that any such framework will be developed under the authority and guidance of the Conference of the Parties;

# The current status of UNFCCC negotiation (2/2)

## Decision 1/CP18

- 46. *Decides* that the work programme referred to in paragraph 44 above shall address the following elements, inter alia:
  - (a) The purposes of the framework;
  - (b) The scope of approaches to be included under the framework;
  - (c) A set of criteria and procedures to ensure the environmental integrity of approaches in accordance with decision 2/CP.17, paragraph 79;
  - (d) <u>Technical specifications to avoid double counting through the</u> <u>accurate and consistent recording and tracking of mitigation</u> <u>outcomes</u>;

(e) The institutional arrangements for the framework;

- The JCM is one of various approaches Japan and partner countries are jointly developing and implementing , and Japan intends to contribute to elaborating the framework for such approaches under the UNFCCC.
- Japan also intends to report to the COP regarding the use of the JCM in Biennial Reports including the Common Tabular in line with Decision 19/CP18.

# Technical Details Currently Considered for the JCM

# Necessary documents for the JCM

			Rules and Guidelines	
Overall			✓ Rules of Implementation	
			Project Cycle Procedure	
			Glossary of Terms	
			Guidelines for Designation as a Third-Party	
			Entity (TPE guidelines)	
Joint Committee			Rules of Procedures for the Joint	
			Committee (JC rules)	
			Guidelines for Developing Proposed	
iviethodology			Methodology (methodology guidelines)	
	Developing	$\checkmark$	Guidelines for Developing Project Design	
	a PDD		Document and Monitoring Report (PDD	
Project	Monitoring	and monitoring guidelines)		
	Validation	$\checkmark$	Guidelines for Validation and Verification	
	Verification		(VV guidelines)	



Note: Asterisk (\*) indicates documentation relevant for each step of the procedure





# Rules of Procedures for the Joint Committee

(Subject to further consideration and discussion with host countries)

## Members

- > The Joint Committee (JC) consists of <u>representatives from both Governments</u>.
- Each Government designates members, which may not exceed [10].
- The JC has two Co-chairs to be appointed by each government (one from the host country and the other from Japan). Each Co-Chair can designate an alternate from members of the JC.

## Decision making in the JC

- > The JC meets no less than once a year and decision by the JC is adopted by consensus.
- > The JC may adopt decisions by electronic means in the following procedure:
  - (a) The proposed decisions are distributed by the Co-Chairs to all members of the JC.
  - (b) The proposed decision is deemed as adopted when,
    - i) <u>no member of the JC has provided negative assertion within [20] calendar days after</u> distribution and <u>both Co-Chairs have made affirmative assertion</u>, or
    - ii) <u>all members of the JC have made affirmative assertion</u>.
- If a negative assertion is made by one of the JC members, the Co-Chairs take into account the opinion of the member and take appropriate actions.
- > The JC may hold conference calls to assist making decisions by electronic means.

## **External assistance**

> The JC may establish panels and appoint external experts to assist part of its work.

Languages: English Secretariat: The secretariat services the JC.

Confidentiality: Members of the JC, Secretariat, etc. respect confidentiality.

Record of the meeting: The full text of all decisions of the JC is made publicly available.

# Basic Concept for Crediting under the JCM

- In the JCM, emission reductions to be credited are defined as the difference between "<u>reference emissions</u>" and project emissions.
- The reference emissions are calculated <u>below business-as-usual</u> (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 <u>a net decrease and/or avoidance of GHG</u> <u>emissions</u>.



# **Crediting Threshold**

- Reference emissions are calculated by multiplying a <u>"crediting threshold</u>" which is typically expressed as GHG emissions per unit of output by total outputs.
- A crediting threshold should be established *ex ante* in the methodology <u>applicable for the same project type in the</u> <u>host country</u>. It should also be established conservatively in order to calculate reference emissions <u>below BaU</u> <u>emissions</u>.
- This standardized approach will greatly reduce the burden of analyzing many hypothetical scenarios for demonstrating additionality of the proposed project such as under the CDM, whereas increase transparency for calculating GHG emission reductions.

## Addendum: ways to realize net reduction

- A net decrease and/or avoidance of GHG emissions can be realized in alternative way, instead of calculating the reference emissions below BaU emissions.
- Using conservative default values in parameters to calculate project emissions instead of measuring actual values, will lead calculated project emissions larger than actual project emissions.
- This approach will also ensure a net decrease and/or avoidance of GHG emissions, as well as reduce burdens of monitoring.



# JCM Methodology

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

Eligibility criteria	<ul> <li>A "check list" will allow easy determination of eligibility of a proposed project under the JCM and applicability of JCM methodologies to the project.</li> </ul>
Data (parameter)	<ul> <li>List of parameters will inform project participants of what data is necessary to calculate GHG emission reductions/removals with JCM methodologies.</li> <li>Default values for specific country and sector are provided beforehand.</li> </ul>
Calculation	<ul> <li>Premade spreadsheets will help calculate GHG emission reductions/removals automatically by inputting relevant values for parameters, in accordance with methodologies.</li> </ul>

# 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 <u>low carbon technologies</u>, <u>products and services</u>, which will contribute to achieving net <u>emission reductions</u>;
- facilitating the nationally appropriate mitigation actions (NAMAs) in host countries.
- 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.
- Project participants can use the list of approved JCM methodologies, similar to positive list, when applying for the JCM project registration.

# **Eligibility Criteria of the JCM**

- Eligibility criteria in JCM methodologies shall contain the following:
  - 1. The requirements for <u>the project in order to be registered as a</u> <u>JCM project</u>. *<Basis for the assessment of validation and registration of a proposed project>*
  - 2. The requirements for the project to be able to apply the JCM methodology. <same as "applicability condition of the methodology" under the CDM>
- Examples of eligibility criteria 1.
  - Introduction of <u>xx</u> (products/technologies) whose design efficiency is above <u>xx</u> (e.g. output/kWh) <Benchmark Approach>
  - Introduction of <u>xx</u> (specific high efficient products/technologies, such as air conditioner with inverter, electric vehicles, or PV combined with battery) <*Positive List Approach>*
- Examples of eligibility criteria 2.
  - Existence of historical data for <u>x</u> year(s)
  - Electricity generation by <u>xx</u> (e.g. PV, wind turbine) connected to the grid
  - Retrofit of the existing boiler

# Image of Eligibility Criteria

Simple check list is provided for project participants to determine the eligibility of a proposed project under the JCM and applicability of the methodology.

> All the criteria have to be met in order to apply a methodology.

Example: Building energy management system				
Criterion 1	<ul> <li>Energy Management System is to be introduced in already existing buildings.</li> </ul>			
Criterion 2	<ul> <li>The operation and control of equipment and facilities to reduce energy consumption for indoor environments are to be carried out by Energy Management System itself, not just upgrading equipments for energy consumption.</li> </ul>			
Criterion 3	<ul> <li>Be able to identify all energy consumption in the building(s) having equipment controlled by Energy Management System.</li> </ul>			

## Overview of JCM Methodology, Monitoring Plan and Monitoring Report

(Subject to further consideration and discussion with host countries) JCM methodology consists of the followings.

> Approved Methodology Document

- Monitoring Spreadsheet
  - > Monitoring Plan Sheet (including Input Sheet & Calculation Process Sheet)
  - Monitoring Structure Sheet

>Monitoring Report Sheet (including Input Sheet & Calculation Process Sheet)



## **PDD and Monitoring Plan**

- Developing a Project Design Document (PDD) and a Monitoring Plan
  - > A PDD form should be filled in with information of the proposed project.
  - ➤A Monitoring Plan consists of Monitoring Plan Sheet and Monitoring Structure Sheet, and it should be filled in as well.



# **Monitoring Report**

- Making a Monitoring Report
  - ➤A Monitoring Report should be made by filling cells for data input (ex post) in the Monitoring Report Sheet with monitored values.
  - Project participants prepare supporting documents which include evidence for stated values in the cells for data input.



# Possible Contents of the JCM PDD

## A. Project description

(Subject to further consideration and discussion with host countries)

- A.1. Title of the JCM project
- A.2. General description of project and applied technologies and/or measures
- A.3. Location of project, including coordinates
- A.4. Name of project participants
- A.5. Duration
- A.6. Contribution from developed countries

## B. Application of an approved JCM methodology(ies)

- B.1. Selection of JCM methodology(ies)
- B.2. Explanation of how the project meets eligibility criteria of the approved methodology

## C. Calculation of emission reductions

- C.1. All emission sources and their associated greenhouse gases relevant to the JCM project
- C.2. Figure of all emission sources and monitoring points relevant to the JCM project
- C.3. Estimated emissions reductions in each year

## **D. Environmental impact assessment**

## E. Local Stakeholder consultation

- E.1. Solicitation of comments from local stakeholders
- E.2. Summary of comments received and their consideration

## F. References

## Annex

Approved Methodology Spreadsheet consists of Monitoring Plan Sheet, Monitoring Structure Sheet and Monitoring Report Sheet, and it shall be attached to the PDD. 30

References

Feasibility StudiesCapacity Building

# JCM Promotion Scheme by METI

## **JCM Demonstration Projects**

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.
 The budget for FY 2013: 3.5 billion JPY (approximately \$38 million)
 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.

## **Capacity Building Programmes**

Variety of capacity building activities to increase technical experts e.g.,) Experts on measuring amount of emission reductions by introducing low carbon technologies and products in the host country.





# **Capacity Building Activities by METI**

METI engages in a variety of capacity building activities, such as seminars, dispatch of experts, invitation of technical experts, joint researches on MRV methodologies, and government-private sector dialogues:

(Purposes)

- $\diamond~$  To provide technical know-how necessary to implement GHG emissions reduction projects under the JCM
- $\diamond$  To establish MRV methodologies for the JCM
- ✤ To train experts on MRV methodologies for the JCM
- To deepen understanding on the institutional and technical aspects of the JCM both at government and private sectors.
- Capacity building activities by METI in FY2013

\* Other projects are under consideration in counterpart countries.

Medium-sized wind power generation (Maldives)

Highly efficient servers at data centers (India )

Capacity building activities by METI in FY2012

## METI

METI

Highly efficient transmission and coal power plant (Mongolia)

Eco-friendly driving using digital tachograph (Vietnam)

Reduce power transmission loss by using highly efficient transformer (Vietnam)

Highly efficient coal power plant (Ultra super critical )(Vietnam)

Energy saving project at cement industry (South Africa)

Highly efficient servers at Data Centers (India )

Energy efficient technologies at Steel plant (India)

# JCM Promotion Scheme by MOEJ

## **Financing Programme for JCM Model Projects**

MOEJ will finance part of an investment cost (up to the half), on the premise that

recipients seek to deliver JCM credits (half of issued) to the Government of Japan.

- The budget for FY 2013: 1.2 billion JPY (approximately \$13 million)
- Recipient: International consortiums which include Japanese entities
- Scope of the financing: Facilities which reduce CO<sub>2</sub> from fossil fuel combustion as well as construction cost for installing those facilities
- Eligible Projects : Starting construction after the adaption of the financing, and finish construction within FY2013 (one year extension may be approved)



Capacity Building Programmes for the JCM

## 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.

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

#### 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

#### Bangladesh:

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

Kenya: AExpansion of Geothermal Project

### Myanmar:

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

## Sri Lanka: **A**Sustainable Biomass-Based Power Generation

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

#### Lao PDR: Promotion of Use of Electric Vehicles (EVs)

#### Thailand:

Dissemination of High-Efficiency Inverter Air Conditioners AHeat Recovery to Generate Both Cooling and Heating Energy

#### Viet Nam:

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

#### 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
 Asolar Power System at Off-Grid Cell Towers
 Almprovement of REDD+ Implementation Using IC Technology
 Indonesia (and Myanmar):
 Asolar-Diesel Hybrid Power Generation

## **New Mechanisms Information Platform**



- <u>New Mechanisms Information</u>
   <u>Platform</u> website was established to provide the latest movements and information on the JCM.
- <u>Help Desk</u> also accepts and answers inquiries regarding the JCM.
- Another dedicated website for the JCM will be launched. In the meantime, all the documents regarding the JCM development (e.g. outcome of the JC, decisions, methodologies, and projects) are uploaded on this website.
- URL:

http://www.mmechanisms.org/e/initiat ives/index.html