Recent Development of The Joint Crediting Mechanism (JCM)/Bilateral Offset Credit Mechanism (BOCM)

March 2013
Government of Japan

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

**Government**
- Japan
  - Issuance of credits
  - Reports issuance of credits
- Host Country
  - Issuance of credits
  - Reports issuance of credits

**Joint Committee (Secretariat)**
- Develops/revises the rules, guidelines and methodologies
- Registers projects
- Discusses the implementation of JCM
- Conduct policy consultations

**Project Participants**
- Implementation & monitoring of projects
- Request registration of projects
- Submit PDD/monitoring report
- Inform results of validation/verification

**Third party entities**
- Validate projects
- Verify amount of GHG emission reductions or removals
- Inform results of validation/verification

**Project Participants**
- Implementation & monitoring of projects
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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.
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;

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**

- **Submission of Proposed Methodology**
- **Approval of Proposed Methodology**
- **Development of PDD**
- **Validation**
- **Registration**
- **Monitoring**
- **Verification**
- **Issuance of credits**

**CDM**

- **Project Participant**
- **CDM Executive Board**
- **Designated Operational Entities (DOEs)**
- **DOEs**
- **CDM Executive Board**

**Main actors at each process**

- **Project Participant / Each Government**
- **Joint Committee**
- **Third Party Entities**
- **Joint Committee**
- **Project Participant**
- **Third Party Entities**
- **Joint Committee**

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

<table>
<thead>
<tr>
<th>JFY2011</th>
<th>JFY2012</th>
<th>JFY2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Governmental Consultation</strong></td>
<td><strong>Feasibility Studies</strong></td>
<td><strong>JCM Operation</strong></td>
</tr>
<tr>
<td></td>
<td>Explore potential JCM projects/activities</td>
<td>Establishment of the JC</td>
</tr>
<tr>
<td></td>
<td>Study feasibilities</td>
<td>Development of rules and guidelines</td>
</tr>
<tr>
<td></td>
<td>Develop MRV methodologies</td>
<td></td>
</tr>
<tr>
<td><strong>MRV Demonstration Projects</strong></td>
<td><strong>MRV Demonstration Projects</strong></td>
<td><strong>JCM Demonstration Projects</strong></td>
</tr>
<tr>
<td>Apply proposed MRV methodologies to projects in operation</td>
<td>Improve MRV methodologies by using them</td>
<td>Further improve the institutional design of the JCM, while starting JCM operation</td>
</tr>
<tr>
<td></td>
<td>Finalize MRV methodologies</td>
<td></td>
</tr>
<tr>
<td><strong>Capacity Building</strong></td>
<td><strong>UN negotiations on Framework for Various Approaches</strong></td>
<td><strong>JCM Operation</strong></td>
</tr>
</tbody>
</table>

**JCM Operation**

Establishment of the JC
Development of rules and guidelines
Governmental Consultations

- Japan has held consultations for the JCM with developing countries (e.g. Mongolia, Bangladesh, Indonesia, Vietnam) since 2011 and made similar briefing to interested countries as well. Japan will continue consultations/briefing with any countries which are interested in the JCM.

- Japan and Mongolia signed the bilateral Document for the JCM. (first case of signature of the bilateral document for the JCM)

Technical Details Currently Considered for the JCM

(Subject to further consideration and discussion with host countries)
# Necessary documents for the JCM

(Subject to further consideration and discussion with host countries)

<table>
<thead>
<tr>
<th>Rules and Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Rules of Implementation</td>
</tr>
<tr>
<td>✓ Project Cycle Procedure</td>
</tr>
<tr>
<td>✓ Glossary of JCM terms</td>
</tr>
<tr>
<td>✓ Guidelines for designation as a Third-Party Entity (TPE guidelines)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Rules of Procedures for the Joint Committee (JC rules)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Joint Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Guidelines for Developing JCM Proposed Methodology (methodology guidelines)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Guidelines for Developing the JCM Project Design Document and Monitoring Report (PDD and monitoring guidelines)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Validation and Verification Guidelines (VV guidelines)</td>
</tr>
</tbody>
</table>

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Methodology Development Procedure of the JCM

Submission of Proposed Methodology
- Prepare a proposed methodology
  * Methodology guidelines
  * Proposed methodology form
  * Proposed Methodology Spreadsheet

Completeness Check
- Approval of the proposed methodology
- Note: Asterisk (*) indicates documentation relevant for each step of the procedure

Government (Methodology Proponent)
- Prepare a proposed methodology
  * Methodology guidelines
  * Proposed methodology form
  * Proposed Methodology Spreadsheet

Joint Committee
- Develop a proposed methodology under the initiative of the Joint Committee

Project Participant (Methodology Proponent)
- Notify the receipt of the submission
- Communicate the result of completeness check
- Approval of the proposed methodology

Public Inputs
- Public inputs [15 days] (secretariat)
- Notify the outcome of consideration

Assessment of the proposed methodology [60 days or up to 90 days]

Note: (Subject to further consideration and discussion with host countries)
Project Cycle Procedure of the JCM (1/2)

**Project Participant**
- Complete a PDD and develop a monitoring plan
  - *PDD form and Approved Methodology Spreadsheet*
  - *PDD and monitoring guidelines*
- Complete an MoC
  - *Form for the “Modalities of communication statement”*

**Third-Party Entity**
- Submit the PDD and MoC, and request for validation and public inputs

**Joint Committee**
- Notify the receipt of the submission
- Validate a project
  - *Validation and verification guidelines*
  - *Validation report form*
- Prepare a validation report

**Government**
- Public inputs[30 days] (secretariat)
- Notify the receipt of the request for registration
- Completeness check [7 days] (secretariat)
- Notify the registration

Validation
- Validation and verification can be conducted simultaneously or separately.

Registration
- Complete a registration request form
  - *Registration request form*
- Notify the receipt of the request
- Notify the conclusion
- Notify the registration

Registration Request for registration
- Submit the validation report, and the validated PDD and MoC

(Subject to further consideration and discussion with host countries)
Project Cycle Procedure of the JCM (2/2)

Monitoring
- Conduct monitoring
- Prepare a monitoring report
  * PDD and monitoring guidelines
  * Monitoring report form

Verification
- Verify emission reductions
- Prepare a verification report
  * Validation and Verification guidelines
  * Verification report form

Issuance
- Determine allocation of credits
- Complete a credit issuance request form
  * Credit issuance request form

Third-Party Entity
Submit the monitoring report for verification

Joint Committee
Submit the verification report

Government
Request for notification for issuance
- Completeness check [7 days] (secretariat)
- Decision on notification of amount of credits to be issued
- Notify the issuance of credits

* PDD and monitoring guidelines
* Validation and Verification guidelines
* Verification report form

Validation and verification can be conducted simultaneously or separately.
Rules of Procedures for the Joint Committee

Members
- The Joint Committee (JC) consists of representatives from both Governments.
- Each Government designates members, which may not exceed 10.
- The JC elects its two Co-chairs annually, 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 can 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) no member of the JC has provided negative assertion within 20 calendar days after the distribution and both Co-Chairs have made affirmative assertion, or
      ii) all members of the JC have made affirmative assertion.
- If a negative assertion is made by at least one of the JC members, the Co-Chairs take into account the opinions of JC members and take appropriate actions.
- The JC may hold conference calls to assist making decisions by electronic means.

External assistance
- The JC can establish panels and appoint external experts to assist part of its work.

Languages: English  Secretariat: The secretariat shall service the JC.
Confidentiality: Members of the JC, Secretariat, etc. respect confidentiality.
Record of the meeting: All decisions of the JC will be made publicly available.
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.
Reference emissions are calculated by multiplying a “crediting threshold” 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 applicable for the same project type in the host country. It should also be established conservatively in order to calculate reference emissions below BaU emissions.

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.
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 monitoring real values, will lead calculated project emissions larger than real project emissions.

This approach will also ensure a net decrease and/or avoidance of GHG emissions, as well as reduce burdens of monitoring.
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.

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

1. The requirements for the project in order to be registered as a JCM project. *<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 \(xx\) (products/technologies) whose design efficiency is above \(xx\) (e.g. output/kWh) *<Benchmark Approach>*
- Introduction of \(xx\) (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 \(x\) year(s)
- Electricity generation by \(xx\) (e.g. PV, wind turbine) connected to the grid
- Retrofit of the existing boiler
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**

<table>
<thead>
<tr>
<th>Criteria 1</th>
<th>Eligibility</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Electronically controlled building energy management system is installed in the planned project.</td>
<td>✔️</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criteria 2</th>
<th>Eligibility</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Building energy management system installed in the planned project is designed for optimal operational control of facilities and equipments to reduce energy consumption by taking interior conditions into account.</td>
<td>✔️</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criteria 3</th>
<th>Eligibility</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Regularly scheduled feed back (at least once in 6 months) to enhance system outcome is provided by the system provider based on a contract with its beneficiary.</td>
<td>✔️</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criteria 4</th>
<th>Eligibility</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Buildings in which building energy management system is installed are in existence of longer than 5 years at the time of system installation.</td>
<td>✔️</td>
<td></td>
</tr>
</tbody>
</table>
JCM methodology consists of the followings.

- Approved Methodology Document
- Approved Methodology Spreadsheet
- Monitoring Plan Sheet (including Input Sheet & Calculation Process Sheet)
- Monitoring Structure Sheet
- Monitoring Report Sheet (including Input Sheet & Calculation Process Sheet)

Cells for data & information input

(Subject to further consideration and discussion with host countries)
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.

Other necessary information on parameters to be monitored are:
- Monitoring options
- Source of data
- Measurement methods and procedures
- Monitoring frequency

Roles and responsibilities of personnel for monitoring should be described

Cells for data input (ex ante)

<table>
<thead>
<tr>
<th>Monitoring plan No.</th>
<th>Parameters</th>
<th>Description of role</th>
<th>Calculated Value</th>
<th>Source of data</th>
<th>Monitoring frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PDD</td>
<td>Project commission volume after unit AIR during the period</td>
<td>20,000 m³</td>
<td>Direct measurement</td>
<td>Once a week</td>
</tr>
<tr>
<td>2</td>
<td>PDD</td>
<td>Monthly fuel consumption by the PDP</td>
<td>500 T</td>
<td>Direct measurement</td>
<td>Once a month</td>
</tr>
<tr>
<td>3</td>
<td>PDD</td>
<td>Project electricity consumption of the PDP</td>
<td>500 kWh</td>
<td>Direct measurement</td>
<td>Once a week</td>
</tr>
</tbody>
</table>
### 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.

#### Other necessary information on monitored parameters are to be filled in:
- Monitoring options
- Source of data
- Measurement methods and procedures
- Monitoring frequency

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Monitoring period</th>
<th>Monitoring point No.</th>
<th>Description of data</th>
<th>Monitored Values</th>
<th>Measurement methods and procedures</th>
<th>Monitoring frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CO₂ emission reductions</strong></td>
<td>2013-2014</td>
<td>(1)</td>
<td>Project production volume at the HPP during the period of year</td>
<td>22,000</td>
<td>• Collecting electronic consumption data with verified/checked weighing scale and inputting it to an spreadsheet electronically.</td>
<td>once a month</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
<td>Project baseline fuel consumption by the HPP</td>
<td>500</td>
<td>• Collecting the purchase amount from energy invoices and inputting it to an spreadsheet manually.</td>
<td>once a month</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NA</td>
<td>Project electricity consumption by the HPP</td>
<td>500 kWh</td>
<td>• Collecting electric consumption data with verified/calibrated electricity monitoring devices and inputting to an spreadsheet electronically.</td>
<td>continues</td>
</tr>
</tbody>
</table>

### Monitoring Report

(Subject to further consideration and discussion with host countries)
Possible Contents of the JCM PDD

(Subject to further consideration and discussion with host countries)

A. Project description
   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

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 relevant to the JCM project
   C.3. Estimated emissions reductions in each year

D. Environmental impact assessment

E. Local Stakeholder consultation

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.
References

◆ Feasibility Studies
◆ Capacity Building
JCM Feasibility Studies (FSs) by METI in FY2010

30 projects were selected (13 countries)

India:
- Highly efficient coal power plant (Ultra super critical)
- Introduction of energy efficient technologies at iron and steel plant

Maldives:
- Energy consumption reduction of air conditioners by using deep seawater

Malaysia:
- Introduction of air-conditioning control system
- Introduction of energy efficient technologies at cement plant

Malaysia/Indonesia:
- Reducing N2O emission by using coating fertilizer

Indonesia:
- CCS (Carbon dioxide Capture and Storage)
- Introduction of steam tube drying system at low rank coal power plant
- Introduction of energy efficient technologies at cement plant
- Highly efficient coal power plant (Ultra super critical)
- Geothermal power
- Optimum control of plant equipment (by IT)
- REDD+

China:
- Introduction of highly efficient motor system
- Energy saving housing (eco-friendly house)

Vietnam/Laos/Malaysia/China:
- Trial introduction of digital tachograph

Laos/Myanmar:
- Introduction of energy efficient technologies at cement plant

Mexico:
- Promotion of highly efficient light and energy saving of home product

Brazil:
- REDD+

Peru:
- REDD+

Thailand:
- Introduction of CHP facility and privately-owned electrical power facility
- Eco-friendly driving using digital tachograph
- Optimum control of plant equipment (by IT)

Philippines:
- Introduction of energy efficient technologies at iron and steel plant
- Geothermal power

Vietnam:
- Introduction of Nuclear power
- Promotion of highly efficient home electric appliance
- Highly efficient coal power plant (Ultra super critical)
- Reduce power transmission loss by using highly efficient transformer

Laos:
- REDD+
JCM Feasibility Studies (FSs) by METI & NEDO in FY2011

50 projects were selected (18 countries)

Russia:
• Recovery & effective utilization of associated gas

India:
• Highly efficient coal power plants (Ultra Super Critical)
• Development of Energy Saving Technology such as CDQ
• Efficiency Enhancement Project of Coal-fired Thermal Power Plant
• Highly efficient coal power plants (Ultra Super Critical)
• Energy Efficient Technologies for steel works (3 project)
• Solar Energy Technology
• Run-of-river micro hydro power project
• Highly efficient server in Data center

Indonesia:
• Highly efficient solar cells in un-electrified areas
• REDD+ (3 project)
• Introduction of energy efficient technologies at cement plant
• Introduction of steam tube drying system at low rank coal power plant
• SNG project (Substitute Natural Gas)
• Biomass Boiler Power Generation Project
• CCS (Carbon dioxide Capture and Storage)
• Small Hydroelectric Generation
• Eco-shipping for Coastal Cement Tanker
• Flash and Binary Geothermal Power Generation Plants
• Energy Consumption Optimization at Facilities using IT
• Optimum control of plant equipment (by IT)
• Hydro power project renovation

Vietnam:
• Highly Efficient Air Conditioner
• Waste heat utilization in cement plant
• Renewal/consolidation of servers of datacenters
• Highly efficient coal power plants (Ultra Super Critical)
• Coal mine methane and ventilated air methane
• Highly Efficient Energy Conservation Systems

Vietnam/Thailand:
• Green Convenience Stores

Vietnam/Thailand:
• Highly Efficient Air Conditioner
• Waste heat utilization in cement plant
• Renewal/consolidation of servers of datacenters
• Highly efficient coal power plants (Ultra Super Critical)
• Coal mine methane and ventilated air methane
• Highly Efficient Energy Conservation Systems

Vietnam/Laos/Malaysia/China:
• Trial introduction of digital tachograph

Russia:
• Recovery & effective utilization of associated gas

Poland:
• Smart grid technology

Maldives:
• Air conditioners by using deep sea water

Mozambique:
• DDF (Bio Diesel Fuel) & PV (Photovoltaic) Hybrid Power Generation System

Bangladesh:
• Newly constructed CCGT power generation

Kenya:
• Utilization of Solar energy at hotel lodge

Djibouti, Ethiopia, Rwanda:
• Geothermal power generation

South Africa:
• Energy Efficient Technologies for steel plant
• Highly efficient gas turbine

India/Turkey:
• IGCC (Integrated coal Gasification Combined Cycle)

Vietnam/Laos/Malaysia/China:
• Highly efficient coal power plants (Ultra Super Critical)

Vietnam/Thailand:
• Green Convenience Stores

Vietnam/Thailand:
• High Efficiency Air Conditioner
• Waste heat utilization in cement plant
• Renewal/consolidation of servers of data centers
• HIGHLY EFFICIENT COAL POWER PLANTS (Ultra Super Critical)
• Energy Efficient Technologies for steel works (3 project)
• Solar Energy Technology
• Run-of-river micro hydro power project
• Highly efficient server in Data center

Mexico:
• Manufacturing process of caustic soda & chlorine products through brine electrolyzation

Vietnam:
• Highly Efficient Air Conditioner
• Waste heat utilization in cement plant
• Renewal/consolidation of servers of datacenters
• Highly efficient coal power plants (Ultra Super Critical)
• Coal mine methane and ventilated air methane
• Highly Efficient Energy Conservation Systems

Vietnam/Laos/Malaysia/China:
• Trial introduction of digital tachograph

Indonesia:
• Highly efficient solar cells in un-electrified areas
• REDD+ (3 project)
• Introduction of energy efficient technologies at cement plant
• Introduction of steam tube drying system at low rank coal power plant
• SNG project (Substitute Natural Gas)
• Biomass Boiler Power Generation Project
• CCS (Carbon dioxide Capture and Storage)
• Small Hydroelectric Generation
• Eco-shipping for Coastal Cement Tanker
• Flash and Binary Geothermal Power Generation Plants
• Energy Consumption Optimization at Facilities using IT
• Optimum control of plant equipment (by IT)
• Hydro power project renovation

Malaysia:
• Home Solar Power Generation System

Cambodia:
• REDD+

Malaysia/Indonesia:
• Reducing N2O emission by using coating fertilizer

Vietnam/Indonesia/South Africa:
• Introduction of highly efficient Distribution Transformer introduction

Vietnam/Thailand:
• Green Convenience Stores

Vietnam/Laos/Malaysia/China:
• Trial introduction of digital tachograph

India:
• Highly efficient coal power plants (Ultra Super Critical)
• Development of Energy Saving Technology such as CDQ
• Efficiency Enhancement Project of Coal-fired Thermal Power Plant
• Highly efficient coal power plants (Ultra Super Critical)
• Energy Efficient Technologies for steel works (3 project)
• Solar Energy Technology
• Run-of-river micro hydro power project
• Highly efficient server in Data center

India/Turkey:
• IGCC (Integrated coal Gasification Combined Cycle)

Poland:
• Smart grid technology

Maldives:
• Air conditioners by using deep sea water

Mozambique:
• DDF (Bio Diesel Fuel) & PV (Photovoltaic) Hybrid Power Generation System

Bangladesh:
• Newly constructed CCGT power generation

Kenya:
• Utilization of Solar energy at hotel lodge

Djibouti, Ethiopia, Rwanda:
• Geothermal power generation

South Africa:
• Energy Efficient Technologies for steel plant
• Highly efficient gas turbine

Russia:
• Recovery & effective utilization of associated gas

Poland:
• Smart grid technology

Maldives:
• Air conditioners by using deep sea water

Mozambique:
• DDF (Bio Diesel Fuel) & PV (Photovoltaic) Hybrid Power Generation System

Bangladesh:
• Newly constructed CCGT power generation

Kenya:
• Utilization of Solar energy at hotel lodge

Djibouti, Ethiopia, Rwanda:
• Geothermal power generation

South Africa:
• Energy Efficient Technologies for steel plant
• Highly efficient gas turbine
54 projects were selected (19 countries)

Kazakhstan:
- Coal-fired Power Generation

Bangladesh:
- CCGT power generation

Maldives:
- Air conditioners by using deep sea water

Djibouti, Ethiopia:
- Geothermal Power Generation

Kenya:
- Hybrid Mini Grids Using Renewable Energy

Mozambique:
- BDF (Bio Diesel Fuel) & PV (Photovoltaic) Hybrid Power Generation System

South Africa:
- Energy Saving project at cement industry

Mauritius & etc:
- Multi-Stage Deep Seawater Utilization System

India:
- Energy Efficient Technologies for Integrated Steel Works
- Run-of-river micro hydro power project
- Energy Efficient Air Conditioners (HFC 32)
- Coal Drying Technology (Low Temperature Waste Heat Recovery)
- Highly Efficient Servers at Data Centers
- Highly Efficient Coal Power Plants (Ultra super critical)
- Energy Efficient Technologies for Integrated steel works

Vietnam, Myanmar, Cambodia:
- Highly Efficient Coal Power Plants (Ultra Super Critical)

Malaysia/Indonesia:
- Reducing N2O emission by using coating fertilizer
- Developing Technology of Biodiesel Fuel (BDF)
- SNG project (Substitute Natural Gas)
- CCS (Carbon dioxide Capture and Storage)
- Biomass Power Generation
- Eco-shipping for Coastal Cement Tanker
- Small Hydro Power Generation
- Geothermal Power Generation
- Low-Rank Coal Fuel Waste Heat Drying Project

Vietnam:
- Small-Medium Hydropower Generation
- Highly Efficient Energy Conservation Systems
- Highly Efficient Air Conditioner
- Energy Efficiency Technologies for Integrated steel works
- Promotion of Water-Saving Showerheads
- Disseminating and Promoting Electric Motorcycles
- Highly Efficient Coal Power Plants (Ultra Super Critical)

Malaysia:
- Erea Energy Network Construction and Energy Management System (EMS)

Philippines:
- Electric Three-Wheeled Vehicles
- Flash and Binary Geothermal Power Generation

Thailand, Vietnam, Malaysia:
- Energy Saving Systems at Commercial Facilities
- Green Convenience Stores
- Multi-Scale Hydro Power Generation

Thailand, Vietnam:
- Introducing Heat Recovery Heat Pumps
- Multi-Scale Hydro Power Generation
- Energy Efficiency Technologies for Integrated steel works

Indonesia:
- Renewable Energy Hybrid System
- Utility Facility Operation Optimization Technology
- Replacement Project of the Existing Thermal Power Plants
- Rehabilitation of Hydro Power Plants
- REDD+ (5 projects)
- Optimum control of plant equipment (by IT)
- Wind-Power Generation (by EMS)
- Mega-Solar Power Plants Using Thin-Film Solar Cells
- Developing Technology of Biodiesel Fuel (BDF)
- SNG project (Substitute Natural Gas)
- CCS (Carbon dioxide Capture and Storage)
- Biomass Power Generation
- Eco-shipping for Coastal Cement Tanker
- Small Hydro Power Generation
- Geothermal Power Generation
- Low-Rank Coal Fuel Waste Heat Drying Project

Mongolia:
- Highly Efficient Transmission and Coal Power Plant

Vietnam:
- Highly Efficient Transmission and Coal Power Plant

Mexico:
- Introduction of Cogeneration Facilities
Global Environment Centre Foundation (GEC) is serving as a secretariat for the MRV Demonstration Studies using Model Projects & Feasibility Studies. 25 projects were selected for FY2012.

- Among those, there are 13 MRV Demonstration Studies using Model Projects which are to develop MRV methodologies, by applying them to the projects under operation. Based upon knowledge and experience gained through these MRV model projects, applicable MRV methodologies will be finalized.
- 4 potential CDM projects were also selected, to contribute developing new methodologies, standardaized baselines and equitable geographical distribution of the CDM.
- All the relevant information are available at GEC website (http://gec.jp/).

- Taskforces composed of experts for MRV has been set up and the selected MRV model projects / JCM FSs are being conducted under the guidance of the taskforces.
- Host country committees, have been organized for some countries, in order to share mutual perspectives on the JCM, through the discussions in those countries.
Brazil:
- REDD+ in Acre State

Mexico:
- EE Improvement at Households

South Africa:
- Integrated EE Activities at Beer/Beverage Factories

Angola:
- REDD+ through Revegetation & Fuelisation of Woody Biomass Chips

Mongolia:
- Multi-Application of EE at Coal Thermal Power Plants
- Energy Saving at Buildings (Geothermal Heat Pump)

India:
- Utilisation of LED Lights at Office Buildings
- High-Performance Industrial Furnaces to Aluminium Industry

Sri Lanka:
- Development of Castor Seed Industry Cluster
- Best Grid Electricity Mix Focusing on REs

China:
- Energy Saving through Water-Saving Toilet Systems
- Energy Management and Control Systems at Factories
- X- CMM Electric Generation and Integrated EE Improvement

Thailand:
- Waste Management Activities in Thailand
- Development of MRT Network
- Wind Power Generation in Low Wind Speed Condition
- Institutional Development of BEMS with Certificated Carbon Credits
- X Utilisation of Off-Peak Power from Storage Batteries & Introduction of Electric Vehicles

Viet Nam:
- REDD+ through Revegetation at Denuded Lands & Woody Biomass-based Power Generation in Son La Province
- X Utilisation of Blast Furnace Slags as Blending Material for Cement
- Development of MRT Systems in Hanoi & Ho Chi Minh

Colombia:
- Geothermal Power Generation

Lao PDR:
- Urban Transport Management

Malaysia:
- Energy Generation by Waste Management Activities

Cambodia:
- REDD+ in Prey Long Area

Indonesia:
- Energy Application of Wastes & Wastewater Originated in Processing of Agricultural Products
- REDD+ in Central Kalimantan Province
- REDD+ and Bio-Fuel Production & Utilisation
- Avoidance of Peat Aerobic Digestion & Rice Husk-based Power Generation
- Development of MRT Systems in Jakarta

NOTE:
- EE= Energy Efficiency
- MRT= Mass Rapid Transit
- BEMS= Building & Energy Management Systems
Mexico:
◆ Small-scale Wind Power Generation with Remote Monitoring System

India:
◆ Bagasse-based Power Generation including Waste Heat Utilisation

Moldova:
◆ Biomass Boiler Heating using Agricultural Waste as Fuel

Mongolia:
◆ Replacement of Coal-Fired Boiler by Geothermal Heat Pump for Heating
◆ Upgrading and Installation of High-Efficient Heat Only Boilers (HOBs)

Myanmar:
■ Landfill Gas (LFG) Recovery and Utilisation for Electric Power Generation

Nepal:
■ Programme to Reduce Non-Renewable Biomass Consumptions through Introduction of High-Efficient Cook Stoves

Bhutan:
■ Rural Electrification through Expansion of Electric Grid mainly composed of Hydropower

Bhutan:
◇ Rural Electrification through Expansion of Electric Grid mainly composed of Hydropower

Colombia:
◇ Geothermal Power Generation in a Country with Suppressed Demand

Cambodia:
◆ Methane Recovery and Utilisation from Livestock Manure by using Bio-digesters
◆ Small-scale Biomass Power Generation with Stirling Engine
◆ REDD+ in Tropical Lowland Forest

Viet Nam:
◆ Integrated EE Improvement at Beer Factory
◇ Biogas-based Cogeneration with Digestion of Methane from Food/Beverage Factory Wastewater
◇ Improvement of Vehicle Fuel Efficiency through Introduction of Eco-Drive Management System
◇ REDD+ through Forest Management Scheme, and Biomass-based Power Generation using Timber Industry Waste

Viet Nam, and Indonesia:
◇ Promotion of Modal Shift from Road-based Transport to MRT System

Lao PDR:
◆ Transportation Improvement through introduction of Efficient Buses and Provision of Good Services
◇ Introduction of Mechanical Biological Treatment (MBT) of Municipal Solid Waste, and Landfill Gas (LFG) Capture, Flaring and Utilisation

Sri Lanka:
◆ Biomass-based Thermal Energy Generation to Displace Fossil Fuels

Indonesia:
◇ Solar-Diesel Hybrid Power Generation to Stabilise Photovoltaic Power Generation
◆ Prevention of Peat Degradation through Groundwater Management, and Rice Husk-based Power Generation
◇ REDD+ for Conservation of Peat Swamp Forest, and Biomass-based Power Generation using Timber Mill Waste to Process Indigenous Trees derived from Conserved Forest

Moldova:
◆ Biomass Boiler Heating using Agricultural Waste as Fuel

Mongolia:
◆ Replacement of Coal-Fired Boiler by Geothermal Heat Pump for Heating
◆ Upgrading and Installation of High-Efficient Heat Only Boilers (HOBs)

Nepal:
■ Programme to Reduce Non-Renewable Biomass Consumptions through Introduction of High-Efficient Cook Stoves

Bangladesh:
■ Programme for Integrated Energy Efficiency Improvement of Dyeing Process

Sri Lanka:
◆ Biomass-based Thermal Energy Generation to Displace Fossil Fuels

Lao PDR:
◆ Transportation Improvement through introduction of Efficient Buses and Provision of Good Services
◇ Introduction of Mechanical Biological Treatment (MBT) of Municipal Solid Waste, and Landfill Gas (LFG) Capture, Flaring and Utilisation

Thailand:
◆ Bagasse-based Cogeneration at Sugar Mill
◆ Transport Modal Shift through Construction of MRT System
◆ Energy Savings through Building Energy Management System (BEMS)
◆ Waste Heat Recovery System with Cogeneration
◇ Introduction of Electronic Gate to International Trade Port to Improve Port-related Traffic Jam

Viet Nam:
◆ Integrated EE Improvement at Beer Factory
◇ Biogas-based Cogeneration with Digestion of Methane from Food/Beverage Factory Wastewater
◇ Improvement of Vehicle Fuel Efficiency through Introduction of Eco-Drive Management System
◇ REDD+ through Forest Management Scheme, and Biomass-based Power Generation using Timber Industry Waste

Viet Nam, and Indonesia:
◇ Promotion of Modal Shift from Road-based Transport to MRT System

NOTE: EE= Energy Efficiency
MRT= Mass Rapid Transit

Mexico:
◆ Small-scale Wind Power Generation with Remote Monitoring System

NOTE: EE= Energy Efficiency
MRT= Mass Rapid Transit
Capacity building

- Capacity building is an important component of JCM.
- Capacity building for JCM will be useful not just for JCM alone, but also for improving CDM, and developing NAMAs.

(Example)

- **Indonesia**
  - Support for establishing the MRV agency by JICA

- **Zambia/Bhutan**
  - Support for simplified CDM methodologies for Rural Electrification by JICA

- **Mekong countries**
  - Policy dialogue and enhanced briefing on JCM for government officials in charge of climate change of five Mekong countries (Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam)
METI engages in a variety of capacity building activities, such as seminars, expert dispatches, technical experts invitations, joint researches on MRV methodologies, and government-private sector dialogues:

(Purposes)
- To provide technical know-how necessary to implement GHG emissions reduction projects under the JCM
- To establish MRV methodologies for the JCM
- To train experts on MRV methodologies for the JCM
- To train entities to act as third-party verifiers 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 FY2012

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<th>METI</th>
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<td>Highly Efficient Transmission and Coal Power Plant (Mongolia)</td>
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<td>Highly efficient coal power plant (Ultra super critical) (Vietnam)</td>
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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

- 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

- 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)