Financing Programme for JCM Model Projects by MOEJ

Open Seminar
City-to-City Collaboration and JCM Projects for Low Carbon Development in Asian Cities
Monday 23, January 2017
Tokyo

Global Environment Centre Foundation (GEC) as the Secretariat of the JCM Financing Programme
JCM Financing programme by MOEJ (FY2013～2016) as of January 12, 2017

Total 93 projects in 16 partner countries

- Model Project in FY 2013 (7 projects in 3 countries)
- Model Project in FY 2014 (13 projects in 6 countries)
- ADB Project in FY 2014 (1 project in 1 country)
- Model Project in FY 2015 (33 projects in 10 countries)
- Model Project in FY 2016 (38 projects in 10 countries)
- REDD+ Model Project (2 projects in 2 countries)

Underlined projects have started operation (34 projects, including 7 partially started projects)
Projects with * have been registered as JCM projects (13 projects)
Government of Japan

Finance part of an investment cost (less than half)

International consortiums (which include Japanese entities)

Conduct MRV and expected to deliver at least half of JCM credits issued

Finance Programme for JCM Model Projects by MOEJ

Budget for projects starting from FY 2017 is 6.0 billion JPY in total by FY 2019.

*Includes collaboration with projects supported by JICA and other governmental-affiliated financial institute

➢ Scope of the financing: facilities, equipment, vehicles, etc. which reduce CO2 from fossil fuel combustion as well as construction cost for installing those facilities, etc.

➢ Eligible Projects: starting installation after the adoption of the financing and finishing installation within three years.
Call for Proposals for JCM Model Projects in FY2017 (1)

➢ **Schedule**

- **Call for Proposal:** early in April 2017
- **Deadline for submitting Proposals:** mid. of May 2017
- **Publication of selected model projects:** late in June 2017

* 2nd call depends on the selection of model projects. It will start from September and end in December 2017. However it will end before December when total amounts of financial support reach the amounts of budget.

➢ **Maximum Percentage of Financial Support (plan)**

<table>
<thead>
<tr>
<th>Number of already selected project(s) using a similar technology in each partner country</th>
<th>Percentage of financial support</th>
</tr>
</thead>
<tbody>
<tr>
<td>None (0)</td>
<td>Up to 50%</td>
</tr>
<tr>
<td>Up to 3 (1 – 3)</td>
<td>Up to 40%</td>
</tr>
<tr>
<td>More than 3 (&gt;3)</td>
<td>Up to 30%</td>
</tr>
</tbody>
</table>
Categorization by applied technology type, Number. of JCM model project by each country

<table>
<thead>
<tr>
<th>Country</th>
<th>No. of project</th>
<th>Technology Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>26</td>
<td>Solar Power Plant</td>
</tr>
<tr>
<td>Indonesia</td>
<td>25</td>
<td>Chiller</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>14</td>
<td>Boiler</td>
</tr>
</tbody>
</table>

No. of country: 17
Top 3:
- Thailand 26 tech.
- Indonesia 25 tech.
- Viet Nam 14 tech.

No. of technology type: 36
Top 3:
- Solar Power Plant 24 projects (12 Countries)
- Chiller 12 projects (6 Countries)
- Boiler 7 projects (6 Countries)

*If one JCM model project applies several technologies, the numbers are counted for each technology.
Countries of Priority
The model project shall prioritize the following countries that have already established or decided to establish the JCM (as of 13 January 2017):
Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Laos, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and Philippines (*If other countries establishes JCM subsequently, they shall be included.)

Cost-effectiveness of emission reductions of GHG* is desirable to satisfy the standard below;

- 4,000 JPY/tCO2e

\[
\text{Amount of financial support[JPY]} = \frac{\text{Emission reductions of GHG [tCO2e/y] \times legal durable years[y]}}{}
\]

Payback period is desirable for longer than 3 years.
Call for Proposals for JCM Model Projects in FY2017 (3)

- **Project registration**
  - The application for the registration shall be conducted within 1 year from the start of the operation of the facilities introduced by the project in principle.

- **Monitoring**
  - Participants shall conduct monitoring to quantitate the effects of the facilities on GHG reductions, and report the results to MOEJ each fiscal year until the end of legal durable years of the facilities as stipulated by the Japanese law.

- **Request for Issuance of JCM credits**
  - Based on the monitoring results mentioned above, participants shall request for the issuance of the JCM credits.

- **Deliver the Issued JCM credits**
  - Participants shall deliver at least fifty percent of the issued JCM credits to the Japanese government.
Projects eligible for the financing

The projects eligible for the financing programme shall satisfy the requirements (a) to (d) listed below:

(a) Projects that reduce energy-related CO2 emissions in developing countries with which Japan has signed or has been consulting to sign bilateral document on the JCM, and that are expected to contribute to achieving Japan’s emission reduction target through the JCM

(b) Implementation of projects will not adversely affect the environment and society of countries where projects are implemented

(c) Reduction of GHG emissions achieved by the projects can be quantitatively calculated and verified

(d) Facilities installed by the projects do not receive any other subsidy by the Government of Japan.
Example of International Consortium

**International Consortium**

**Representative Participant**
(Shall be Japanese entity)
Main Role: Overall project management

**Joint Implementation**

**Partner Participant(s)**
(At least one local entity shall be a partner)
Main Role: Installation and management of facilities

- **Order**
- **Construction**
- **Order**
- **Supply**

**Contractor**

**Manufacturer**
Responsibilities of the representative participant

i. Applying for the model project,

ii. Managing the progress in the project, developing the project implementation plan, and acting as the contact entity for accounting and other administrative work related to the project,

iii. Introducing the leading low carbon technology,

iv. Purchasing, installing and commissioning of the facilities during the construction period, and managing the facilities to be utilized according to the purpose of the model project for the legal durable years of the facilities as stipulated by the Japanese law,

v. Return of the finance resulting from violations of the Financing Regulations by any of the partner participants.
Responsibilities of all members of an international consortium

i. To cooperate with JCM methodology developers by providing information required to develop a methodology applicable to the project for GHG emissions reduction;

ii. To cooperate with TPEs by providing materials and information required to efficiently conduct validation of the abovementioned project and verification of GHG emission reduction at the project site;

iii. To reduce, monitor and calculate GHG emissions utilizing the facilities;

iv. To estimate the GHG emission reductions by the project, and to report it to GEC or MOEJ annually until the end of the legal durable years of the facilities as stipulated by the Japanese law, which is unique to each project;

v. To request the Joint Committee to issue credits and take necessary actions such as application for the project registration by the Joint Committee set up or to be set up by the Governments of Japan and JCM partner- country;

vi. To deliver at least fifty percent of the JCM credits of GHG issued corresponding to emission reduction achieved by the project for the abovementioned legal durable years to the Japanese government;

vii. To manage the facilities with due care of a prudent manager for their legal durable years as stipulated by the Japanese law in order to realize their efficient operation in accordance with the purpose of the financial support even after the completion of the model project.

viii. To report to GEC in case that a constituent member is changed and to continue the above obligations from i. to vii.
Project type (1)
Manufacturer sells facilities to local entity

Representative participant sells self-made facilities to local entity.
In Indonesia, humidity control is indispensable for the textile industry to maintain product quality and massive energy output, which is required for the adjustment of factory air conditioning. The target factory replaces old-fashioned chillers (230USRt and 250USRt) with high-efficiency chillers (500USRt), in order to save energy and mitigate CO₂ emissions.

High-efficiency chillers adopt a high-performance economizer cycle and a super-cooling refrigerant cycle in order to save energy. Also, the chillers use low-pressure refrigerant (HFC-245fa) with zero ODP(Ozone Depletion Potential).

### Expected GHG Emission Reductions

- **Project 1:** 117 tCO₂/year
- **Project 2:** 152 tCO₂/year

### Sites of JCM Model Project

Batang, Central Java, Indonesia
The objective of this project is to build and operate a waste-to-energy plant that (1) generates electricity, some of which will be supplied to a power company, resulting in reduction of fossil fuel consumption at the power plant, (2) mitigates electricity shortage, (3) reduces CH₄ emissions from landfill disposal, and (4) improvement of waste management in Yangon City. This is a pilot project conducted by Yangon City for promotion of waste-to-energy, with relatively small capacity (60t of waste per day). Groundbreaking is scheduled in October, 2015.

Expected GHG Emission Reductions

4,732tCO₂/year
(2,358tCO₂ accounts for the energy-originated CO₂)
- The calculation is based on the condition of 60t of waste treated per day and operation of 310 days per year, 24 hours per day (operating ratio: 85%).
- The emission factor refers to the latest CDM project in Myanmar (0.8tCO₂/MWh).

Outline of GHG Mitigation Activity
Project type (2)
Trading/Engineering company sells facilities to local entity

Representative participant buys facilities from manufacturer and sells them to local entity, or intermediate between manufacturer and local entity.
This project aims to achieve electricity usage reduction per ton produced (by about 10%) by introducing a Japanese high-efficient system to the OCC line for Fajar Paper, thereby contributing to CO2 reduction.

The OCC line is a process to prepare clean raw materials containing dissolved paper fibers by mixing used corrugated board into water for defiberization and removing foreign substances. Since a large amount of material (water) is used, electricity is significantly consumed to power motors.

**Outline of GHG Emission Reduction Activity**

This project plans to introduce a Japanese high-efficient system to the OCC line for Fajar Paper, thereby contributing to CO2 reduction. The OCC line is a process to prepare clean raw materials containing dissolved paper fibers by mixing used corrugated board into water for defiberization and removing foreign substances. Since a large amount of material (water) is used, electricity is significantly consumed to power motors.

**Expected GHG Reductions**

\[ \text{Emission Reduction} = \text{Reference Emission} - \text{Project Emission} \]

\[ \text{ER}_y = 83,938.6 \text{ tCO}_2\text{e/year} - 69,054.0 \text{ tCO}_2\text{e/year} = 14,884.6 \text{ tCO}_2\text{e/year} \]

**Sites of Project**

Bekasi, Indonesia
This project introduces “Air conditioning control system” to air conditioners in six component factories in Vietnam. The system constantly monitors operation status of the compressor equipped in the air conditioner outdoor unit by measuring an electric current at the optimum programmed timing. Controlling the compressor once or twice in thirty minutes and the system reduces energy consumption and CO₂ emissions. This system can be introduced to existing facilities and realizes energy-saving by preventing excessive cooling without impairing comfortableness.

4,681tCO₂/year

\[(RC_{ac1} \times Tac.y_1 \times ER_r \times CEF) + (RC_{ac2} \times Tac.y_2 \times ER_r \times CEF) + \cdots + (RC_{acn} \times Tac.y_n \times ER_r \times CEF)\]

RC_{ac1, 2, \cdots, n}: AC Capacity
Tac.y_{1, 2, \cdots, n}: Operation Hours
n: 540 (sets)
ER_r: Eower reduction rate (17.6%)
CEF: Emission factor of electricity (0.5605 tCO₂/MWh)
Project type(3)
Establish a special-purpose company

Representative participant and partner participant establish a new SPC (special-purpose company) and invest in it. SPC installs facilities and implements project.
The project aims to reduce CO₂ emissions by constructing a 10MW Solar Power Generation Plant beside the 110kV substation in Darkhan City, which locates approximately 230 km North of the capital city Ulaanbaatar, and supplying the generated electricity through the power transmission network.

The power plant employs crystalline solar modules of maximum output of 310W per panel and module conversion efficiency of 15.9%. Approximately 32,000 numbers (72 series) of these modules and peripheral systems are installed on a land of 36 ha.

**Outline of GHG Mitigation Activity**

**Expected GHG Emission Reductions**

14,746tCO₂/year

Reference Emissions = EG_PE × EFgrid = 15,034
Project Emissions = EG_AUX × EFgrid = 288
Emission Reduction = RE−PE

= 15,034 − 288 = 14,746 (tCO₂/y)

EG_PE: Electricity generated by the project (MWh)
EG_AUX: Grid electricity consumption for auxiliary equipment (MWh)
EFgrid: CO₂ Emission factor (=1.0601tCO₂/MWh)

**Sites of JCM Model Project**

- Darkhan city
- Site located approx. 10km south of Darkhan city
Main points to be confirmed for project implementation (1)

| Structure for project implementation | ➢ Fix representative participant early  
|                                       | ➢ Confirm decision-making and management of local participant(s)  
|                                       | ➢ Conclude international consortium agreement  
|                                       | ➢ General consensus on MRV implementation |
| Finance                               | ➢ Budget approval of local participant on purchase and installation of facilities  
|                                       | ➢ Commitment of financing with financial institution if necessary |
| Profitability                         | ➢ Profitability analysis |
Main points to be confirmed for project implementation (2)

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Plan schedule for purchase, installation and financial support (needs special care if bidding required)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agreement by relevant participants on organizing SPC and its schedule (in the case of Project type (3))</td>
</tr>
<tr>
<td>Relevant laws, permits and licenses</td>
<td>Confirm related laws and regulations (ex. FIT, bidding) and understand its practical operation</td>
</tr>
<tr>
<td></td>
<td>Recognize necessary period for getting relevant permits and licenses</td>
</tr>
</tbody>
</table>

All of the above points need to be confirmed with relevant documents and evidence
Thank you!

Reference:
- Outlines of each JCM Model Project and feasibility study are summarized at GEC website on JCM <http://gec.jp/jcm/>.