

## The New Mechanisms to Be Launched Soon

**Special Report 1** Introduction to the JCM/BOCM

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**Event Reports**

Capacity building activities for NAMAs development and MRV implementation in Vietnam

**New Mechanisms Information Platform**

A new page featuring the latest information on NAMAs

## Special Report 1 Introduction to the JCM/BOCM

### Outline and objectives

The Japanese Government proposes the Joint Crediting Mechanism (JCM; also known as the Bilateral Offset Credit Mechanism: BOCM), which is designed to enable flexible technology transfer and mitigation measures tailored to the rapidly changing status of developing countries, thereby ultimately contributing to global greenhouse gas (GHG) emission reductions and removals.

More precisely, the JCM/BOCM is expected to quantify Japan's contributions to GHG emission reductions in partner countries through the transfer and diffusion of low-carbon technologies, products, systems, services, and infrastructure, thus helping Japan to achieve its emission reduction target. At the moment, efforts such as feasibility studies, information diffusion, capacity building and development of a project inventory are underway. Japan plans to accelerate designing the mechanism to operationalize it as soon as possible. Also, It will ensure transparency of the JCM/BOCM in order to enhance its international credibility.



### Current status of development of JCM/BOCM methodologies

The Japanese Government held the open seminar "Japan's Proposal on Bilateral Offset Credit Mechanism" on 24 August 2012, in which the tentative outline of JCM/BOCM methodologies was presented. JCM/BOCM methodologies are to be designed in such a way to facilitate the use of them by project implementation agencies, simplify the work of verification bodies, and ensure transparency of the calculation logic. Also, conservative default values are to be widely employed for the purpose of alleviating the monitoring burden.

## Proposed JCM/BOCM Manuals for Interested Parties

The Ministry of the Environment of Japan (MOEJ) is in the process of developing JCM/BOCM manuals, taking into consideration the monitoring burden and overall convenience for JCM/BOCM participants.

### Manual for monitoring

Stipulates requirements for designing and implementing projects as well as monitoring GHG emission reductions from emission/removal sources under the JCM/BOCM.

### Manual for verification

Aims to clarify minimum verification standards of the JCM/BOCM, ensure coherence and enhance the overall quality of preparation, implementation and reporting of verification.

### Format of verification reports

Information on third-party verification body's site visits and parameter verification methods as well as verified amount of GHG emission reductions is to be included.

### Format of monitoring reports

A monitoring plan and ex-ante estimates of emission reductions are to be included.

[Sample image of a monitoring report format]

	Fuel type	Value	Units	Parameter
<b>1. Calculations for emission reductions</b>				
Emission reductions during the period of year y		1945.55	tCO <sub>2</sub> y	ER <sub>y</sub>
<b>2. Selected default values, etc.</b>				
CO <sub>2</sub> emission factor of electricity in year y	Electricity	0.456	tCO <sub>2</sub> /MWh	EF <sub>elec,y</sub>
Net calorific value of fossil fuel in year y #1	Diesel	37.7	GJ/M	NCV <sub>D,y</sub>
CO <sub>2</sub> emission factor of fossil fuel in year y #1	Diesel	0.0687	tCO <sub>2</sub> /GJ	EF <sub>0687,D,y</sub>
Net calorific value of fossil fuel in year y #2	LPG	50.8	GJ/t	NCV <sub>L,y</sub>
CO <sub>2</sub> emission factor of fossil fuel in year y #2	LPG	0.0599	tCO <sub>2</sub> /GJ	EF <sub>0599,L,y</sub>
Net calorific value of fossil fuel in year y #3	Natural gas	43.5	GJ/1000Nm <sup>3</sup>	NCV <sub>N,y</sub>
CO <sub>2</sub> emission factor of fossil fuel in year y #3	Natural gas	0.051	tCO <sub>2</sub> /GJ	EF <sub>051,N,y</sub>
Net calorific value of fossil fuel in year y #4	Kerosene	36.7	GJ/M	NCV <sub>K,y</sub>
CO <sub>2</sub> emission factor of fossil fuel in year y #4	Kerosene	0.0679	tCO <sub>2</sub> /GJ	EF <sub>0679,K,y</sub>
<b>3. Calculations for reference emissions</b>				
Reference emissions during the period of year y		1945.55	tCO <sub>2</sub> y	RE <sub>y</sub>
Project emissions during the period of year y		17509.95	tCO <sub>2</sub> y	PE <sub>y</sub>
Energy use reduction coefficient with BEMS	Office building	10.0	%	EER
<b>4. Calculations of the project emissions</b>				
Project emissions during the period of year y		17509.95	tCO <sub>2</sub> y	PE <sub>y</sub>

## MRV System Building Project in Asia by the IGES for the Implementation of the JCM/BOCM

The Institute for Global Environmental Strategies (IGES) is supporting the establishment of the JCM/BOCM as a new mechanism that complements the shortcomings of the existing market mechanisms, thereby assisting developing countries to build low-carbon societies. This project specifically aims to help selected developing countries in Asia – namely, India, Indonesia, Cambodia, China, Laos, Mongolia, the Philippines, Thailand and Vietnam – build institutions that can measure, report and verify (MRV) GHG emission reductions in the respective countries. In more concrete terms, the IGES is conducting support activities, including helping the respective governments to design policies and institutions related to the JCM/BOCM, identifying target sectors as well as providing assistance for developing methodologies for monitoring and quantifying GHG emission reductions.

### Support for the implementation of the JCM/BOCM and the CDM, including development of methodologies

As for Cambodia, Laos, Mongolia and Vietnam, the IGES assists the Ministry of the Environment, other relevant ministries and the designated national authorities (DNAs) to develop an MRV system for the implementation of the JCM/BOCM. More specifically, the institute is developing MRV methodologies and guidelines for the target sectors.

Also, the IGES plans to hold workshops for the private sector of these countries with the aim of developing GHG emission reduction projects within the JCM/BOCM framework. The IGES has the intention of building the JCM/BOCM in these countries taking into account lessons learned from existing market mechanisms, such as the Clean Development Mechanism (CDM).

Target country	Target sector
Cambodia	Biomass
Mongolia	Biofuel
Laos	Compost
Vietnam	Energy efficiency

### Support for developing domestic emissions trading schemes, voluntary carbon markets and methodologies

Building upon experience in operating Japan Verified Emission Reduction (J-VER) scheme and Japan Voluntary Emissions Trading Scheme (JVETS), the IGES has been organizing consultation workshops and seminars in order to enhance capacities needed to implement the JCM/BOCM, such as capacities for institution building and developing project proposals in China, Indonesia and Thailand. A particular focus is on supporting designing the Nusantara Carbon Scheme (NCS) in Indonesia, Thailand Voluntary Emission Reduction (T-VER) Program and Thailand Voluntary Emission Trading Scheme (TVETS) in Thailand, and a domestic emission trading scheme in China. Also, the IGES has been organizing workshops and practical training for verification bodies of these countries in order to enhance their capacities to measure, report and verify GHG emissions and reductions thereof.



A workshop held in Indonesia



Practical training for a Thai verification body

### General support for carbon markets including the CDM

The IGES has been hosting workshops for local businesses for the purpose of disseminating information on the JCM/BOCM, voluntary carbon markets and international negotiations under the UNFCCC in India and the Philippines. The institute has also been conducting research in these countries with the view to developing JCM/BOCM projects.

Furthermore, the IGES is writing a research paper on Japan's low carbon technologies that can be useful in the Indian context in cooperation with the Energy and Resources Institute (TERI). And it plans to develop MRV methodologies and guidelines for the waste sector in the Philippines. The IGES has been working on developing simplified MRV methodologies for composting, making use of data collected from composting sites thus far this year.

# Studies on the JCM/BOCM Conducted in Vietnam by Japanese Private Businesses

MRV demonstration and JCM/BOCM feasibility studies are being conducted with the goal of acquiring knowledge and experience that would be useful for the establishment of the JCM/BOCM. Below are the details of two of these studies conducted in Vietnam by Recycle One, Inc. and Tepia Corporation Japan Co., Ltd. respectively.

## [MRV demonstration study] Integrated Energy Efficiency Improvement at Beer Factory (Recycle One, Inc.)

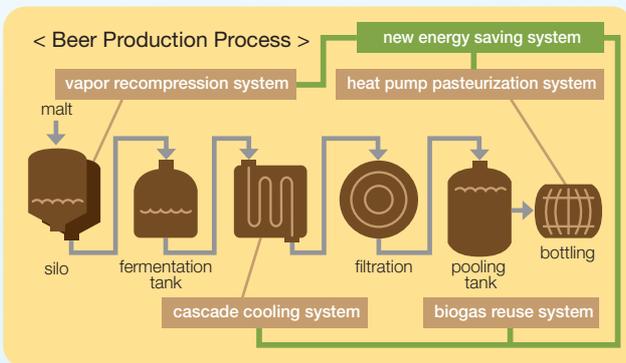
### Project summary

The purpose of this study is to set up an integrated energy saving system at a beer brewery in Thanh Hoa owned by the second largest beer producer in Vietnam, HABECO, and quantify the overall GHG emission reductions therefrom.



Beer plant in Thanh Hoa

In more concrete terms, an “energy structural elucidation simulator” is employed to analyze the total energy consumption of the plant and detect parts where energy-efficiency is low. An integrated energy saving system developed by Mayekawa Mfg. Co., Ltd. – composed of a vapor recompression system, a cascade cooling system, biogas reuse boilers and a heat pump pasteurization system – is then installed to improve overall energy efficiency of the plant. In addition, Japan Quality Assurance Organization conducts capacity building activities for local verification bodies in cooperation with some local partners.



### The way forward

It is generally considered technically very difficult to accurately measure the mitigation effect of each specific energy conserving system within an integrated mechanism. The proposed project aims at resolving this issue by setting the whole plant as the boundary of quantification and quantifying GHG emission reductions per unit volume of beer produced. The integrated energy conservation system accompanied by the innovative quantification method has the potential to be employed by other plants in Asia, Latin America and Africa, where beer production is growing.

## [JCM/BOCM feasibility study] Biogas-based Cogeneration with Digestion of Methane from Food/Beverage Factory Wastewater (Tepia Corporation Japan Co., Ltd.)

### Project summary

The purpose of this study is to introduce upflow anaerobic sludge blanket (UASB) technology and a micro-gas-turbine cogeneration system to three food processing plants near Hanoi and quantify their effect on GHG emission reductions. The UASB



Tapioca plant

technology is utilized to remove organic substance and collect methane from wastewater. Using the methane thus produced, the micro-gas-turbine cogeneration system generates electricity and hot water, partially meeting the need for heat and power within the plants. This mechanism reduces the need for fossil fuel, thereby reducing CO<sub>2</sub> emissions.

Based on collected data on the past operational status of each plant, including the amount of wastewater and composition analysis thereof, emission reduction potentials have been estimated. And MRV methodologies are being developed at the moment.

### Implementation structure

The Institute of Environmental Technology of Vietnam Academy of Science and Technology (VAST-IET) is in charge of wastewater analysis, information collection and coordination with the authorities. Also, technical support is provided by Yanmar Co., Ltd., Osaka Sangyo University as well as Osaka prefecture.

### The way forward

Small- and medium-scale enterprises operating food processing plants in Vietnam typically lack funding for properly treating industrial waste. Against this background, the proposed combination of technologies that enables both waste treatment and electricity generation appears promising. Indeed, the Vietnamese Government shows high interest in this particular method in terms of waste disposal and energy efficiency. In particular, it is expected that this method will contribute to improving the environment surrounding plants without adequate waste/wastewater disposal facilities.



Lagoon facility at tapioca plant

# Capacity Building Activities for NAMAs Development and MRV Implementation in Vietnam

## Current status of capacity building activities for NAMAs development and MRV

The Overseas Environmental Cooperation Center (OECC) has been conducting a capacity development project for NAMAs development and MRV implementation in the waste sector in Vietnam. Below are two of the recent events held to this end.

### Training Session in Japan

The OECC hosted a training session in Tokyo, Japan from 10 to 14 September 2012 for Vietnamese officers and researchers involved in NAMAs development, including staff members at the Institute of Meteorology, Hydrology and Environment (IMHEN). Japanese experts gave lectures on GHG emissions quantification methodologies in the waste sector, waste management policies including 3R currently in place in Asian countries and Hanoi, as well as semi-aerobic landfill technology. Also part of the training session was a visit to a sludge treatment facility that makes effective use of the energy and gas released from sludge disposal and a semi-aerobic landfill site that effectively reduces methane emissions without resorting to advanced technology.

On top of the technical aspect of the training session, the relationship between the Vietnamese participants and the OECC deepened, thus facilitating the remaining work to be conducted for the project.



Lecture on semi-aerobic landfill



Sludge treatment facility

### Working Group

Vietnamese officers and researchers involved in NAMAs development and the OECC held the third Working Group session on 5 November in Hanoi to have discussions on NAMAs development and MRV implementation in the waste sector. More specifically, they discussed GHG emissions quantification methods in the waste sector, future projections of business-as-usual (BAU) emissions, and estimates about GHG emission reductions through NAMAs compared to the BAU scenario. Also, low-carbon technologies deemed suitable for the country as a whole or some specific provincial areas were presented. Based on data on the amount of waste produced in Vietnam, the OECC will aim to evaluate GHG emission reduction potentials of different NAMA options in close cooperation with Vietnam. As part of such efforts, the OECC plans to dispatch a group of low-carbon businesses and experts to Vietnam next year.



Third Working Group session



## New Mechanisms Information Platform

## What's New

### Updates on NAMAs Information

A new page featuring the latest information on NAMAs has been added to the New Mechanisms Information Platform. The new page contains information on countries implementing NAMAs, their national or sector-specific GHG emission reduction targets, concrete actions to be taken as NAMAs, baseline years/emissions and national climate change policies/strategies.

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



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