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The Joint Crediting Mechanism (JCM):

Progress of JCM Financing Programme and Feasibility Studies for JCM Projects by MOEJ in 2015

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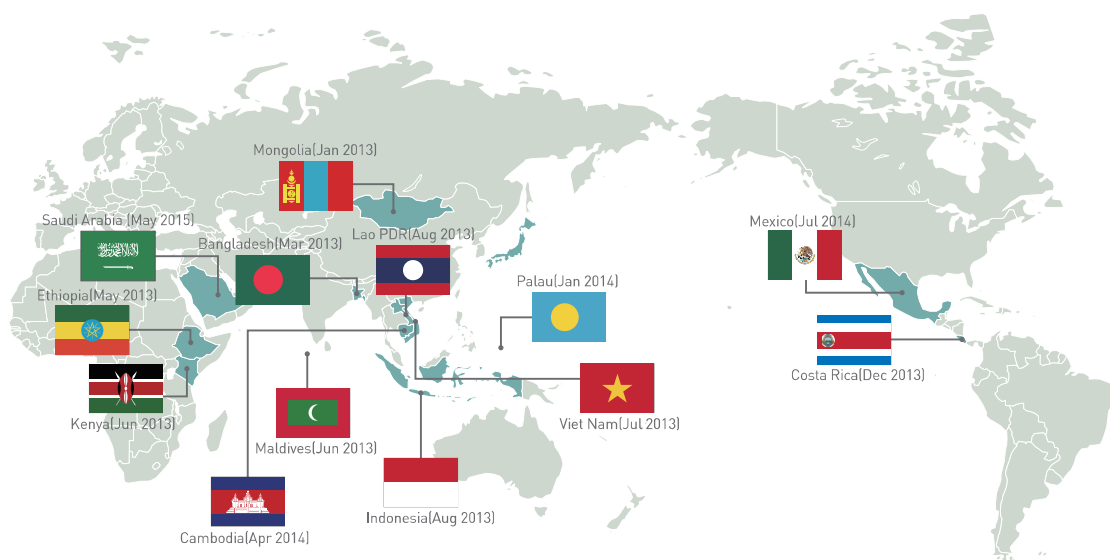
URL: <http://gcec.jp/>
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1.1

Japan's Proposal towards Low Carbon Growth

In order to effectively address climate change mitigation issue, it is necessary to achieve low-carbon growth all around the world by mobilising technology, market, and finance adequately. Recognising this necessity, the government of Japan has proposed the Joint Crediting Mechanism (JCM) as a means to facilitate the diffusion of leading low-carbon technologies, systems, and so forth in developing countries. Japan has held consultations for the JCM with developing countries since 2011 and signed the bilateral documents under the JCM with 13 countries.

JCM Partner countries (as of 21 May 2015)

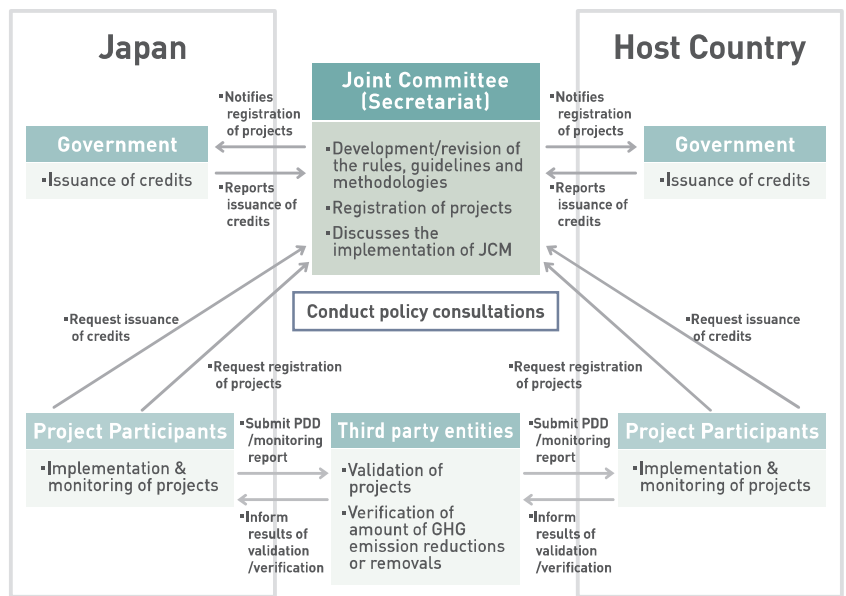
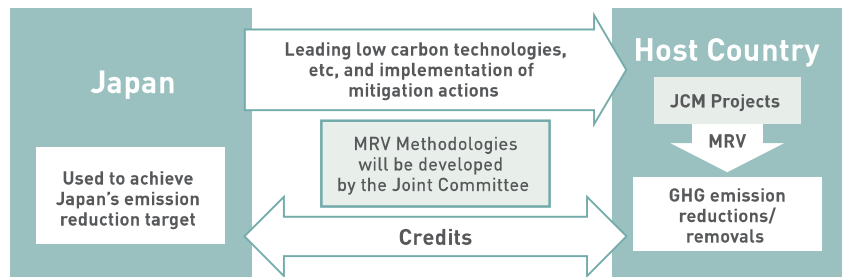


1.2

Basic Concept of the JCM

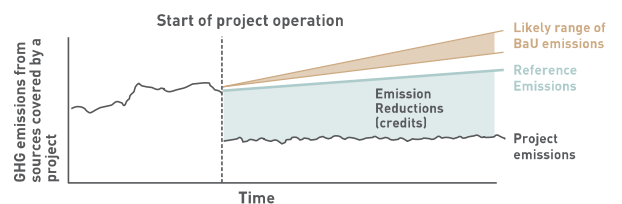
- Facilitating diffusion of leading low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions, and contributing to sustainable development of developing countries;
- Appropriately evaluating contributions from Japan to GHG emission reductions or removals in a quantitative manner, by applying measurement, reporting and verification (MRV) methodologies, and using them to achieve Japan’s emission reduction target;
- Contributing to the ultimate objective of UNFCCC by facilitating global actions for GHG emission reductions or removals, complementing the Clean Development Mechanism (CDM).

Scheme of the JCM



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 that 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.

Basic Concept for Crediting under the JCM



1.3

The JCM as Part of the Framework for Various Approaches under the UNFCCC

The JCM is one of various approaches based on Decision 1/CP18, jointly developed and implemented by Japan and partner countries, and Japan intends to contribute to elaborating the framework for such approaches under UNFCCC. In December 2013, Japan reported the use of the JCM in Japan's First Biennial Reports in line with the Decision 19/CP18. Also, in October 2014, Japan submitted its views on the framework for various approaches (FVA) referred to in paragraphs 6 of FCCC/SBSTA/2014/L.10

1.4

JCM Methodologies

- 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 the 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.

Key Features of JCM Methodology

Eligibility criteria	A "check list" will allow easy determination of eligibility of a proposed project under the JCM and applicability of JCM methodologies to the project.
Data (parameter)	<ul style="list-style-type: none"> • List of parameters will allow project participants to determine what data is necessary to calculate GHG emission reductions/removals with JCM methodologies. • Default values for specific country and sector are provided beforehand.
Calculation	Premade spreadsheets will help calculate GHG emission reductions/removal automatically by inputting relevant values for parameters, in accordance with methodologies.

List of Approved JCM Methodologies

No.	Country	Sectoral Scope	Methodology Title	GHG Emission Reduction Measures
MN_AM001	Mongolia	Energy distribution	Installation of energy-saving transmission lines in the Mongolian Grid	Replacing the existing conductors in transmission lines with Low Electrical Power Loss Aluminum Conductors, Aluminum-Clad Steel Reinforced, which have lower transmission loss compared to the existing conductors.
MN_AM002	Mongolia	Energy industry	Replacement and Installation of High Efficiency Heat Only Boiler (HOB) for Hot Water Supply Systems	The installation of new HOB for hot water supply system and the replacement of existing coal-fired HOP.
MV_AM001	Maldives	Energy industries	Displacement of Grid and Captive Genset Electricity by Solar PV System	Displacement of grid electricity and/or electricity using diesel fuel as a power source by installation and operation of the solar PV system(s).
VN_AM001	Viet Nam	Transport	Transportation energy efficiency activities by installing digital tachograph systems	Improvement of driving efficiency by installation of digital tachograph system to freight vehicle fleets providing to the drivers a real-time feedback against inefficient driving.
VN_AM002	Viet Nam	Energy demand	Introduction of Room Air Conditioners Equipped with Inverters	Energy saving achieved by introduction of RACs equipped with inverters.
VN_AM003	Viet Nam	Energy demand	Improving the energy efficiency of commercial buildings by utilization of high efficiency equipment	Reduction of electricity and fossil fuel consumed by existing facilities is achieved by replacing or substituting these facilities with high efficiency equipment.
ID_AM001	Indonesia	Energy industries	Power Generation by Waste Heat Recovery in Cement Industry	Replacing the electricity from the grid with the one to be generated by waste heat recovery system with suspension preheater boiler and air quenching cooler boiler.
ID_AM002	Indonesia	Energy demand	Energy Saving by Introduction of High Efficiency Centrifugal Chiller	Saving energy by introducing high efficiency centrifugal chiller for factories, commerce facilities, etc.
ID_AM003	Indonesia	Energy demand	Installation of Energy-efficient Refrigerators Using Natural Refrigerant at Food Industry Cold Storage and Frozen Food Processing Plant	Saving energy by introducing high efficiency refrigerators to the food industry cold storage and frozen food processing plants.
ID_AM004	Indonesia	Energy demand	Installation of Inverter-Type Air Conditioning System for Cooling for Grocery Store	Saving energy by introducing inverter-type air conditioning system for cooling for grocery stores.
PW_AM001	Palau	Energy industries	Displacement of Grid and Captive Genset Electricity by a Small-scale Solar PV System	Displacement of grid electricity and/or electricity using diesel fuel as a power source by installation and operation of the solar PV system(s).

1.5

JCM Projects

The first JCM Project was registered on 31 October, 2014 in Indonesia. So far, four (4) Projects were registered as listed below.

List of Registered JCM Projects

Registration No.	Country	Sectoral Scope	Registration Date	Project Title	Emission Reduction (average ton per year)
ID001	Indonesia	Energy demand	31 October, 2014	Energy Saving for Air-Conditioning and Process Cooling by Introducing High-efficiency Centrifugal Chiller	114
ID002	Indonesia	Energy demand	29 March, 2015	Project of Introducing High Efficiency Refrigerator to a Food Industry Cold Storage in Indonesia	120
ID003	Indonesia	Energy demand	29 March, 2015	Project of Introducing High Efficiency Refrigerator to a Frozen Food Processing Plant	21
PW001	Palau	Energy industry	21 April, 2015	Small scale solar power plants for commercial facilities in island states	227



02

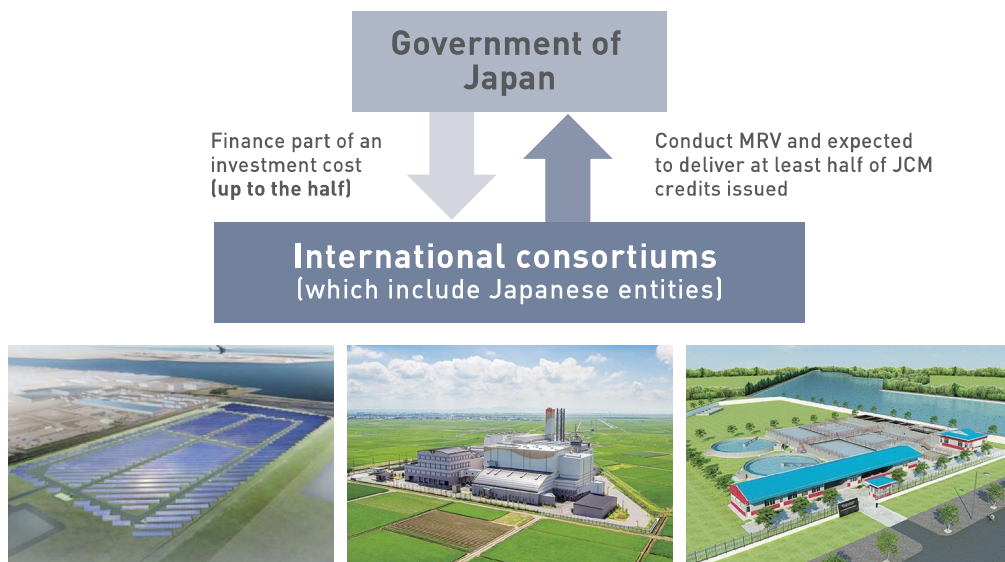
JCM Financing Programme and Feasibility Studies

2.1

JCM Model Projects

This scheme was launched in 2013. The scope of the financing includes facilities, equipment and vehicles which reduce CO₂ from fossil fuel combustion as well as construction cost for installing those facilities.

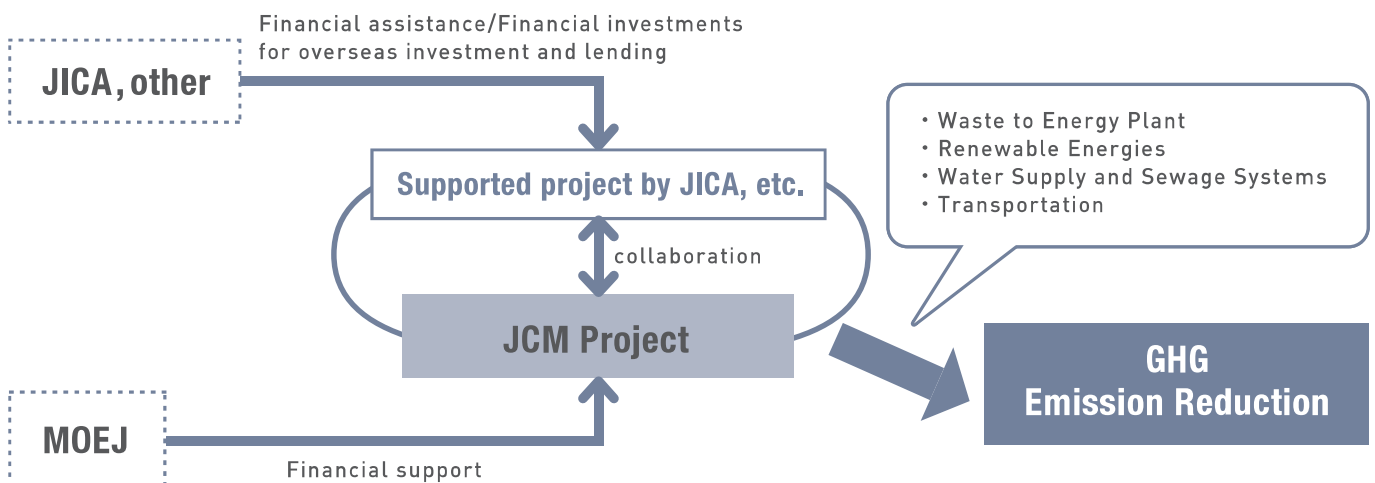
Through the programme, MOEJ financially supports part of the initial cost (up to half), on the premise of seeking to deliver at least half of the issued JCM credits to the government of Japan. The budget for FY2015 is 2.4 billion Japanese yen (Approx. USD 20 million) per year by FY2017 (Total 7.2 billion JPY).



2.2

Collaborative Financing Programme

This scheme was launched in 2014. The scheme is to finance the projects which have the better efficiency of reducing GHG emission in collaboration with other projects supported by JICA and other governmental-affiliated financial institute. The purpose of the scheme is to expand superior and advanced low-carbon technologies for building the low carbon society as the whole city wise and area wise in the wider fields, and to acquire credits by the JCM. The budget for FY2015 is 1.8 billion Japanese yen (Approx. USD 15 million) per year by FY2018 (Total 7.2 billion JPY).



2.3

Feasibility Studies

The objective of the feasibility studies includes elaboration of investment plan on JCM projects, development of MRV methodologies and investigation of feasibility on potential JCM projects. There are three types of the studies.

JCM Project Planning Study

To make concrete project plans in order to develop a JCM Model Project in the next fiscal year, including financial plans, construction plans, operation plans, implementation schemes, and MRV structures.

JCM Feasibility Study

To survey potential projects/activities which can be implemented under the JCM in future.

REDD+ Demonstration Study

To survey potential projects/activities which can be implemented as REDD+ projects under the JCM in future

Example of Feasibility Studies



Introduction of high efficient old corrugated Cartons process at paper factory (Indonesia)



Recovery and utilization of biogas from mixed treatment of waste and septage (Viet Nam)

03

Overview of JCM Model Projects and Feasibility Studies

The following pages provide information of the JCM Model Projects and Feasibility Studies.

Sectoral Scope



Energy industries
(renewable - / non-renewable sources);



Energy distribution;



Energy demand;



Manufacturing industries;



Chemical industry;



Construction;



Transport;



Mining/
Mineral production;



Metal production;



Fugitive emissions from fuels (solid, oil and gas);



Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride;



Solvents use;



Waste handling and disposal;



Afforestation and reforestation/REDD+;



Agriculture.

JCM Model Projects (MP)

P12-22

JCM Project Planning Studies (PS)

P23-26

JCM Feasibility Studies (FS)

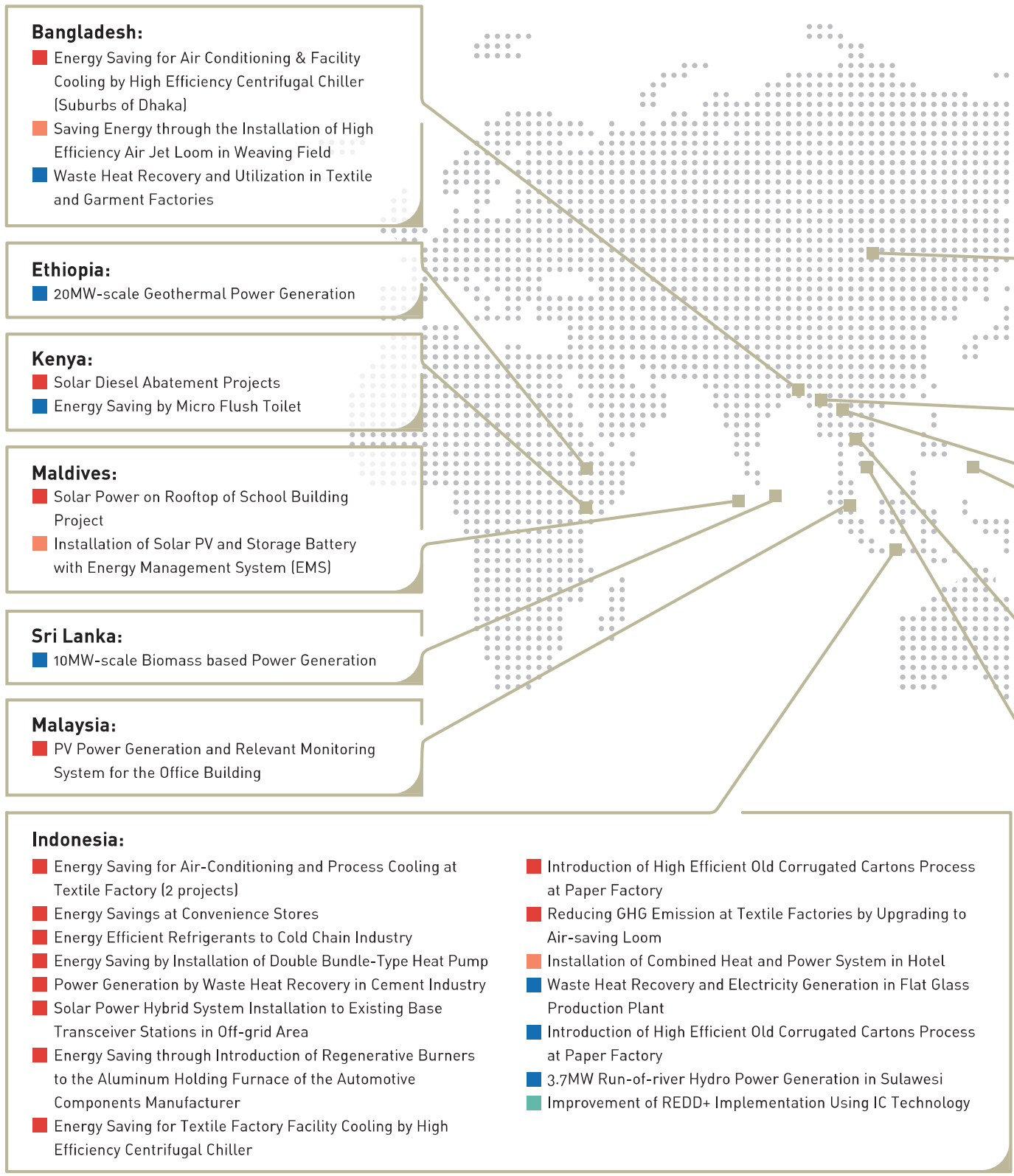
P27-35

REDD+ Demonstration Studies (REDD+)

P36-37

* The projects and studies in this section do not necessarily mean they are registered as the JCM projects.

Overview of the JCM Model Projects and Feasibility Studies





- JCM Model Project (MP)
- JCM Project Planning Study (PS)
- JCM Feasibility Study (IFS)
- REDD+ Demonstration Study (REDD+)

* JCM Model Projects are selected in 2013 and 2014.
Other studies are selected in 2014.

Mongolia:

- Upgrading and Installation of Centralized Control System of High-Efficiency Heat Only Boiler (HOB)
- 10MW-scale Solar Power Generation for Stable Power Supply
- Efficiency Improvement of Combined Heat and Power Plant by Thermal Insulation

Myanmar:

- Introduction of Waste to Energy Plant in Yangon City
- Environment Improvement through Utilization of Biogas from POME Fermentation System

Costa Rica:

- Promotion of Electric Vehicle for Taxi Usage

Lao PDR:

- Biomass Utilization in Cement Kiln
- REDD+ in Luang Prabang Province

Cambodia:

- Energy Saving by Efficiency Improvement of Water Treatment Plants of Phnom Penh Water Supply Authority
- REDD+ in Prey Long Area and Seima Area

Palau:

- Small Scale Solar Power Plants for Commercial Facilities in Island States
- Small-Scale Solar Power Plants for Commercial Facilities Project II
- Solar PV System for Schools Project
- Solar Power Generation System

Vietnam:

- Anaerobic Digestion of Organic Waste for Biogas Utilization at Market
- Eco-driving by Utilizing Digital Tachograph System
- Introduction of Amorphous High Efficiency Transformers in Power Distribution Systems
- Introduction of Energy-from-Waste Project in Ho Chi Minh City
- Saving Energy by Introducing Optimum Pumps in Water Purification Plant
- Energy Saving for Irrigation Facility by Introducing High-efficiency Pumps
- 40MW-scale Hydro Power Generation in Lao Cai Province
- Recovery and Utilization of Biogas from Mixed-treatment of Waste and Septage
- Introduction of Co-generation System Using Bagasse in Sugar Factory

MP2013-MN01

Upgrading and Installation of Centralized Control System of High-efficiency Heat Only Boiler (HOB) | Mongolia |



Expected GHG Emission Reductions

364 tCO₂/year
in Bornuur sum

167 tCO₂/year
in Ulaanbaatar City



Bornuur sum & Ulaanbaatar City, Mongolia

Project Owner

Japan : Suuri-Keikaku

Mongolia : Anu-Service

This JCM model project consists of two model sites: Bornuur sum in a rural area and the 118th School in Ulaanbaatar City.

The Bornuur sum project includes the installation of heat only boilers (HOBs) as well as pipe laying work, electrical construction and boiler building construction. This project alters the current heat supply system in Bornuur sum of individual building-based heating, under which low efficiency HOBs and stoves are used. The centralized control system of high-efficiency HOBs is installed in this project. The improvement of boiler efficiency brings about a reduction of coal consumption to reduce CO₂ emissions and other air pollutants.

The other project is the replacement of low-efficiency, old-type boilers with the latest high-efficiency model boilers at the 118th School in Ulaanbaatar City. This project also leads to the reduction of coal consumption to mitigate CO₂ emissions as well as air pollutants.



MP2014-BD01

Energy Saving for Air Conditioning & Facility Cooling by High Efficiency Centrifugal Chiller (Suburbs of Dhaka) | Bangladesh |



Expected GHG Emission Reductions

255 tCO₂/year



Rupshi Naryanganj, Bangladesh

Project Owner

(Japan)Ebara Refrigeration Equipment & Systems Co., Ltd, Ebara Thermal Systems

(Thailand)Co., Ltd

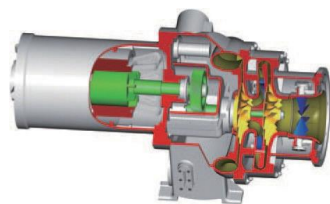
(Bangladesh)CITY SUGAR INDUSTRIES Ltd.

Appropriate process cooling is required for producing high quality food /sugar products. This process cooling consumes large amount of electricity for the operation of chiller.

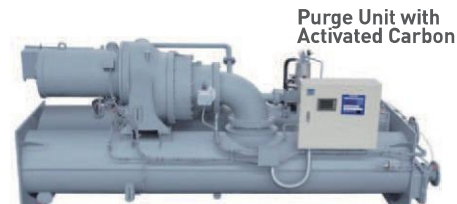
In order to reduce GHG emissions, a high efficiency chiller is one of the best options.

This project introduces high efficiency centrifugal chillers with ECONOMIZER, refrigerant SUB-COOLER and high efficiency compressor.

Also, by applying a purge unit with Activated Carbon, nearly 100% of HFC-245fa refrigerant with zero ODP is recovered for preventing GHG emission.



High Efficiency two stage Compressor



Purge Unit with Activated Carbon
With Economizer & sub-cooler

MP2014-KE01

Solar Diesel Abatement Projects

Kenya



Expected GHG Emission Reductions

405 tCO₂/year



Nairobi, Kenya

Project Owner

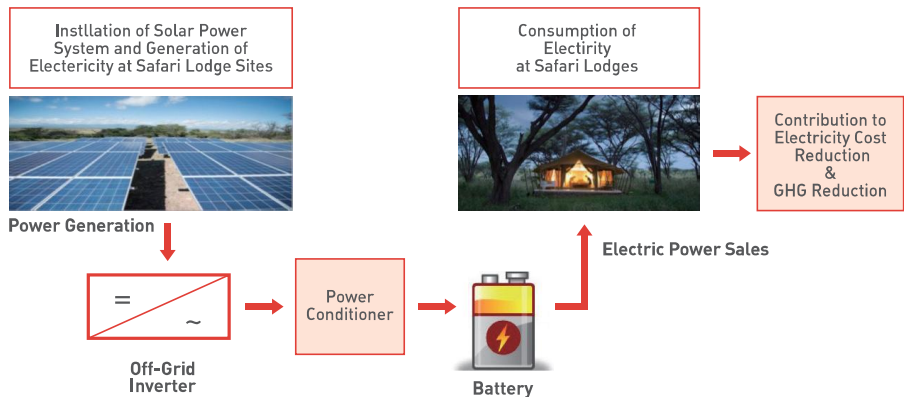
Japan : Ingerosec Corporation

Kenya : NVI Energy(Kenya) Ltd.,

Cheli & Peacock Management Ltd., Borana Ranch Ltd.

The objectives of the project are to install solar PV systems in safari camps, and develop the GHG reductions due to the solar PV.

The ultimate goal is to use superior solar components that generate electricity to mitigate diesel usage and reduce the GHG emission.



MP2014-MV01

Solar Power on Rooftop of School Building Project

Maldives



Expected GHG Emission Reductions

144 tCO₂/year



Male, Maldives

Project Owner

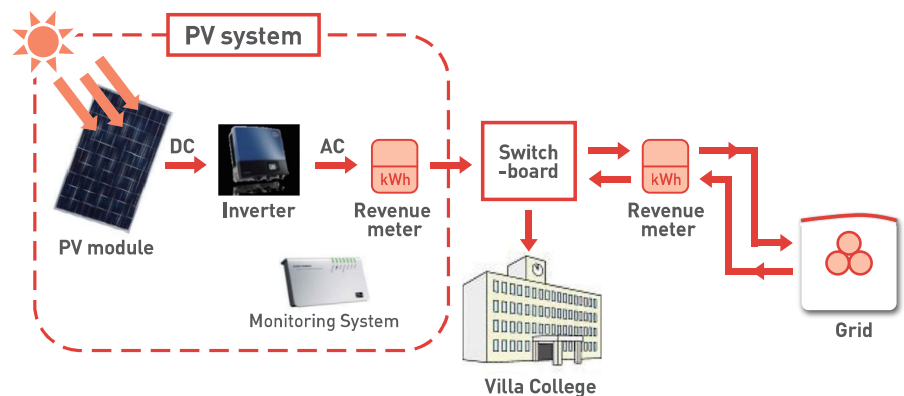
Japan : Pacific Consultants Co., Ltd., InterAct Inc.

Maldives : Villa Educational Services Private Limited

A 185kW grid-connected photovoltaic (PV) system is installed on the rooftops of school buildings.

High quality PV modules and general-purpose inverters with easy maintenance, suitable for small-scale applications, is used. The generated electricity is generally consumed in the school.

When there is surplus electricity, it is supplied to the grid.



MP2014-VN01

Anaerobic Digestion of Organic Waste for Biogas Utilization at Market

Vietnam



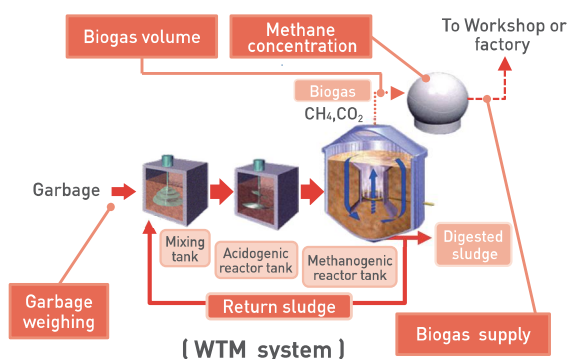
Expected GHG Emission Reductions
3,355 tCO₂/year



Project Owner

Japan : Hitachi Zosen Corporation, K.K. Satisfactory International
Vietnam : Saigon Trading Group

This project separates the organic waste from collected solid waste in the Binh Dien Wholesale market in Ho Chi Minh City, and then feeds it into a methane fermentation system (WTM system), which produces biogas. The biogas is supplied to the workshop/factory within the market to replace fossil fuel. The proposed project avoids GHG emissions from organic waste that would have been sent to decay in a landfill and displacement of fossil fuel consumption.



MP0214-VN02

Eco-driving by Utilizing Digital Tachograph System

Vietnam



Expected GHG Emission Reductions
310 tCO₂/year



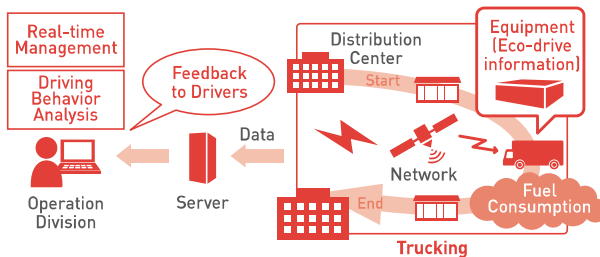
Project Owner

Japan : NIPPON EXPRESS
Vietnam : NIPPON EXPRESS (VIETNAM)

In this project, 124 trucks in use by NIPPON EXPRESS (VIETNAM) are fitted with an eco-drive improving system using digital tachographs, so that the quantity of fuel consumption, running distance and relevant data on driving behavior of drivers are continuously analyzed with cloud network in Binh Duong and Hanoi city, Vietnam.

The drivers are given advice in order to improve their driving behavior based on the analyzed data, and feedback linked to the training outcome is provided for further improving the driving behavior.

This project contributes to realizing improvement of transportation quality as well as fuel efficiency, which is directly linked with reduction in CO₂ emissions.



MP2014-VN03

Introduction of Amorphous High Efficiency Transformers | Vietnam



Expected GHG
Emission Reductions

623 tCO₂/year



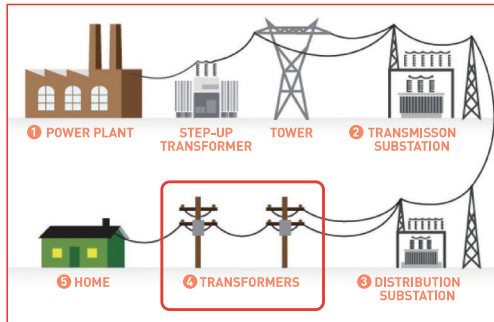
Ho Chi Minh City,
Vietnam

Project Owner

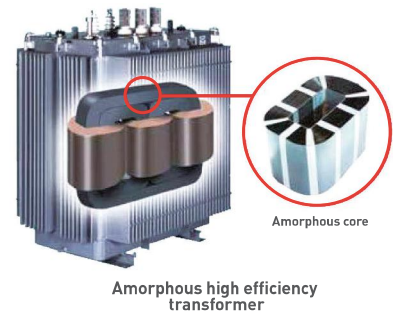
Japan : Yuko Keiso Co., Ltd.,
Vietnam : EVN Southern Power Corporation

Greenhouse Gas (GHG) emission reduction by introducing amorphous high efficiency transformers in the transmission and distribution network of southern Vietnam (EVN Southern Power Corporation jurisdiction).

It enables to achieve a reduction of transmission and distribution losses and contribute to GHG emission reductions.



④ TRANSFORMERS are the subjects of the project.



MP2013-ID01&02

Energy Saving for Air-conditioning and Process Cooling at Textile Factory | Indonesia



Expected GHG
Emission Reductions

Project 1: 117 tCO₂/year
Project 2: 117 tCO₂/year



Batang, Central Java,
Indonesia

Project Owner

Japan : Ebara Refrigeration Equipment & Systems and Nippon Koei Co., Ltd.
Indonesia : PT. Primatexco and PT. Ebara Indonesia

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).



MP2013-ID03

Energy Savings at Convenience Stores

Indonesia



Expected GHG Emission Reductions

28.5 tCO₂/store/year



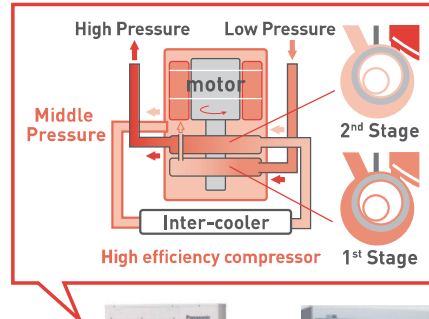
in/around Jakarta, Indonesia

Project Owner

Japan : Lawson, Inc.

Indonesia : PT. Midi Utama Indonesia Tbk

Total electricity consumption of food retail convenience stores is decreased by the installation of the latest high-efficiency facilities and high-efficiency chillers with natural refrigerant (CO₂ refrigerant), inverter-controlled air-conditioners, and LED lighting. As a result, CO₂ emissions due to electricity consumption are reduced.



MP2013-ID04

Energy Efficient Refrigerants to Cold Chain Industry

Indonesia



Expected GHG Emission Reductions

213 tCO₂/year



Bekasi, West Java & Karawang, West Java, Indonesia

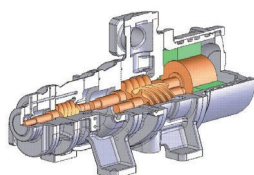
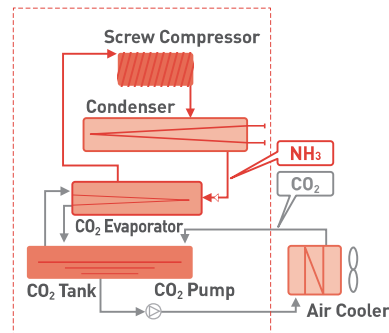
Project Owner

Japan : Mayekawa Manufacturing Co., Ltd.

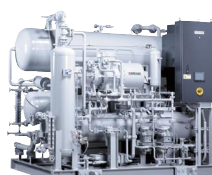
Indonesia : PT. Adib Global Food Supplies, PT. Mayekawa Indonesia

The advanced energy efficient cooling system using natural refrigerant (NH₃ and CO₂) is introduced into the food industry and logistics industry in Indonesia, where energy consumption is very high, demonstrating its high energy saving impact as well as a large amount of GHG emission reductions.

A screw compressor and an IPM (interior permanent magnet synchronous) motor are adopted and operated integrally, to achieve highly efficient operation of the cooling facility.



Screw Compressor



Condensing Unit



MP2013-ID05

Energy Saving by Installation of Double Bundle-type Heat Pump

Indonesia



Expected GHG Emission Reductions

170 tCO₂/year



Bekasi, West Java, Indonesia

Project Owner

Japan : Toyota Tsusho Corporation

Indonesia : PT.TTL Residences

In order to reduce natural gas consumption, a double bundle-type heat pump, generating both heating and cooling energy, is installed into the thermal supply system in serviced apts. The reduction of natural gas consumption and coal-fired electricity consumption through the utilization of the heat pump contributes to GHG emission reductions. The heat pump is capable of high temperature heating (more than 60 degrees C), and its efficiency combining heating and cooling is expected to be 450-500%.



MP2014-ID01

Power Generation by Waste-heat Recovery in Cement Industry

Indonesia



Expected GHG Emission Reductions

122,000 tCO₂/year



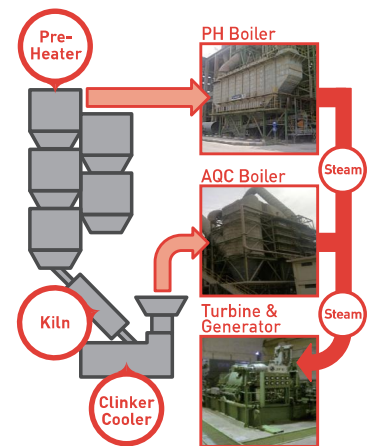
Tuban, East Java, Indonesia

Project Owner

Japan : JFE Engineering Corporation

Indonesia : PT Semen Indonesia (Persero) Tbk

The proposed project is planned to introduce a waste heat recovery (WHR) boiler steam turbine generator system at an existing cement production plant (PT Semen Indonesia, Tuban Plant) located in Tuban, East Java, Indonesia. The WHR system utilizes waste heat currently emitted from the cement factory without utilization. WHR boilers generate steam using the waste heat exhausted from the cement plant, and the steam is fed to the steam turbine generator to generate electricity.



MP2014-ID02

Solar Power Hybrid System Installation to Existing Base Transceiver Stations in Off-grid Area

Indonesia



Expected GHG Emission Reductions
3,096 tCO₂/year
(50 sites)

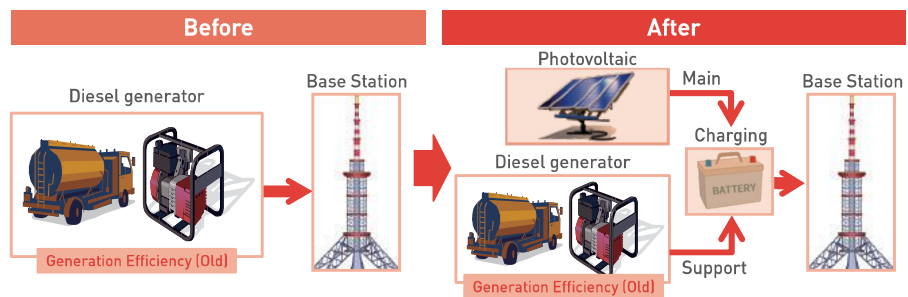


Project Owner

Japan : ITOCHU Corporation
Indonesia : PT. Telekomunikasi Selular

There are many islands, off-grid areas, in Indonesia. This project is to install solar power and lithium ion batteries to existing mobile base stations where supply of electricity is by diesel generator.

We are planning to reduce consumption of diesel oil and CO₂ emissions by the above Hybrid Power System and control each base station's data by Cloud service at Telekomunikasi Selular's office. The project contributes to the spread of new technology in Indonesia and enable establishment of a new remote management system through a Cloud system.



MP2014-ID03

Energy Saving through Introduction of Regenerative Burners to the Aluminum Holding Furnace of the Automotive Components Manufacturer

Indonesia



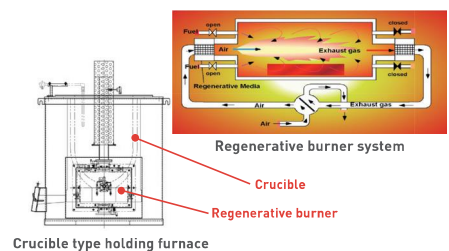
Expected GHG Emission Reductions
855.6 tCO₂/year



Project Owner

Japan : TOYOTSU MACHINERY CORPORATION, HOKURIKU TECHNO CO., LTD.
Indonesia : PT. TOYOTA TSUSHO INDONESIA,
PT. YAMAHA MOTOR PARTS MANUFACTURING INDONESIA (YPMI),
PT. HOKURIKU TECHNO INDONESIA
PT. MATAHARI WASISO TAMA

Replacing a conventional burner with a high-efficiency regenerative burner for an aluminum holding furnace improves energy saving and reduces GHG emissions. YPMI has an aluminum wheel die casting line with 11 crucible type holding furnaces. Local furnace manufacturer PT. Matahari replaces and modifies the furnaces supervised by the branch of Japanese furnace manufacturer Hokuriku Techno. PT. Matahari acquires sophisticated furnace design and manufacturing knowhow of regenerative burner furnaces and their tuning/maintenance techniques.



MP2014-ID04

Energy Saving for Textile Factory Facility Cooling by High-efficiency Centrifugal Chiller

Indonesia



Expected GHG
Emission Reductions

118 tCO₂/year

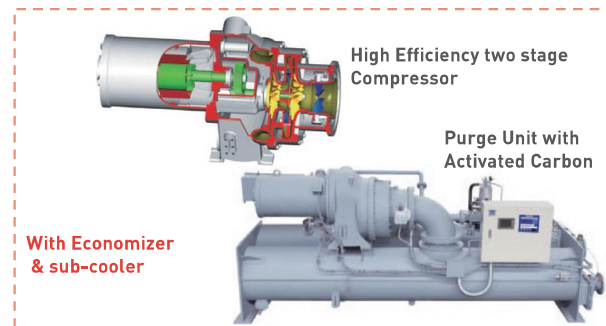


Karawang, West Java,
Indonesia

Project Owner

Japan : Ebara Refrigeration Equipment & Systems Co., Ltd.
Indonesia : PT. Nikawa Textile Industry PT. Ebara Indonesia

The textile industry is a major industry in Indonesia. To produce high quality products, air-conditioning is of key importance. For reducing GHG for the Textile industry, a high-efficiency chiller is one of the best options to choose. The existing 500USRt chiller is replaced by a high-efficiency centrifugal chiller, which consists of a two-stage high efficiency compressor, economizer and sub-cooler system. By applying a purge unit with Activated Carbon, nearly 100% of HFC-245fa refrigerant with 0 ODP is recovered for excellence in GHG reduction.



MP2014-ID05

Introduction of High Efficient Old Corrugated Cartons Process at Paper Factory

Indonesia



Expected GHG
Emission Reductions

14,884 tCO₂/year



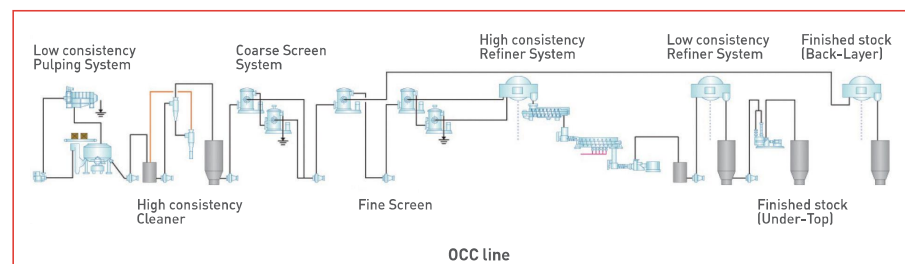
Bekasi,
Indonesia

Project Owner

Japan : KANEMATSU CORPORATON,
Indonesia : PT Fajar Surya Wisesa Tbk.

This project aims to achieve electricity usage reduction per ton produced (by about 10 %) by introducing a Japanese high-efficient system for the old corrugated carton (OCC) process for PT. Fajar Surya Wisesa, 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.



MP2014-ID06

Reducing GHG Emission at Textile Factories by Upgrading to Air-saving Loom

Indonesia



Expected GHG Emission Reductions

566 tCO₂/year



Tangerang & Jakarta & Pandaan, Indonesia

Project Owner

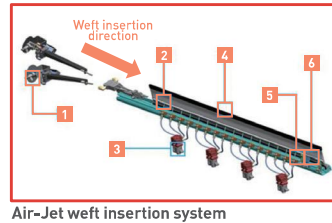
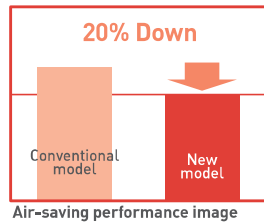
Japan : Toray Industries, Inc.

Indonesia : P.T. Indonesia Synthetic Textile Milles (ISTEM) / P.T. Easterntex
P.T. Century Textile Industry Tbk (CENTEX) / P.T. Toray Industries Indonesia (TIN)

Exporting textiles products from Indonesia is the highest amount in South-eastern Asia.

In the project, at 3 sites of textile factory in Indonesia we will upgrade existing weaving looms to total 81 units of the latest air-saving loom(*). * "Toyota JAT810"

This "JAT810" has original air-saving technology to reduce air consumption for weft insertion more 20% than the conventional model. The effect is not only reducing CO₂ emission by saving the power consumption of air-compressors but also reducing the running cost.



- 1 Controlling peak weft tension device
- 2 New low-pressured air nozzle
- 3 New high-efficiency air valve
- 4 New designed reed for low-pressured air
- 5 Weft detector
- 6 New weft stretch nozzle

MP2013-PW01

Small Scale Solar Power Plants for Commercial Facilities in Island States

Palau



Expected GHG Emission Reductions

390 tCO₂/year



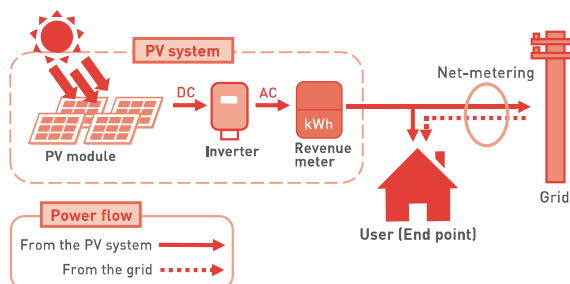
Koror State, Palau

Project Owner

Japan : Pacific Consultants Co., Ltd., InterAct Inc.

Palau : Western Caroline Trading Company,
Surangel and Sons Company, Meleka Environmental Consulting

A grid-connected photovoltaic (PV) system is installed on the rooftops of commercial facilities (220.5kW on a warehouse in Subproject 1 and 150kW on a supercenter building in Subproject 2). This project uses high quality PV modules of a Japanese manufacturer and general-purpose inverters with easy maintenance suitable for small-scale applications. The power generated by the PV system is normally consumed in-house. When there is a surplus, it is supplied to grid. Taking into account the recent large typhoons, PV modules with strong wind resistance are introduced.



MP2014-PW01

Solar PV System for Schools Project

Palau



Expected GHG
Emission Reductions

105 tCO₂/year

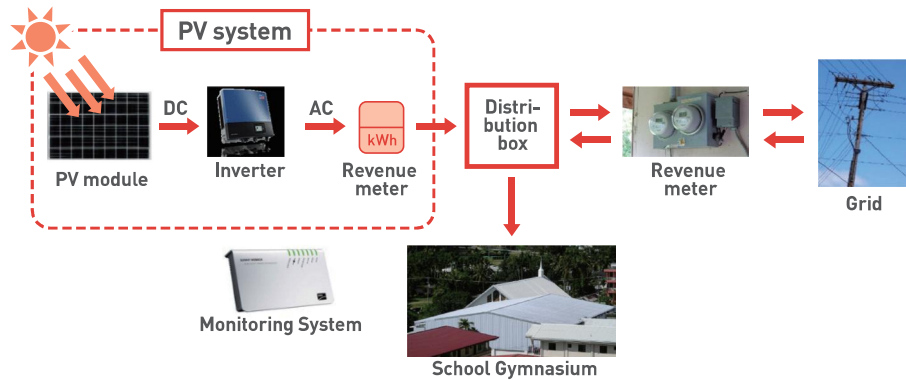


Project Owner

Japan : Pacific Consultants Co., Ltd., InterAct Inc.

Palau : Palau Adventist Schools

A grid-connected solar PV system will be installed at two sites. Palau Seventh-Day Adventist Elementary School (Site A) and Palau Mission Academy (Site B) shall have a 50 kW and 100 kW system respectively. The generated power will mainly be self-consumed. On school holidays, the power will be fed into the grid using the net-metering scheme. A remote monitoring system to monitor the performance of the system will also be installed.



MP2014-PW02

Small-Scale Solar Power Plants for Commercial Facilities Project II

Palau



Expected GHG
Emission Reductions

310 tCO₂/year

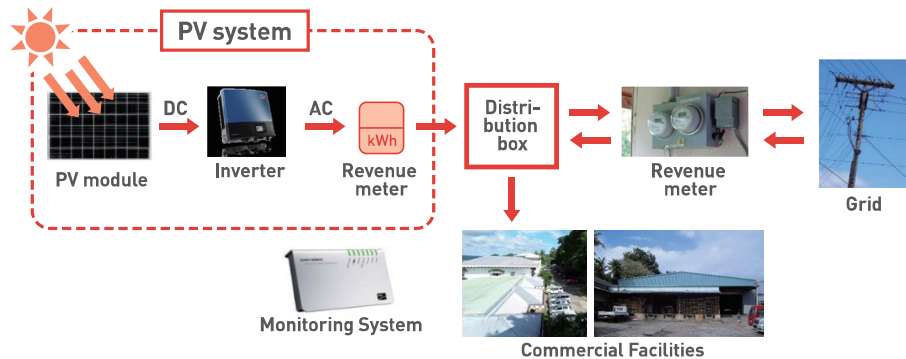


Project Owner

Japan : Pacific Consultants Co., Ltd., InterAct Inc.

Palau : Western Caroline Trading Company, NECO Yamaha Corporation,
Palau Investment and Development Company

A grid-connected solar PV system will be installed at three sites. Western Caroline Trading Company, NECO Yamaha Corporation and Palau Investment and Development Company shall install a 262 kW, 80 kW and 100 kW system respectively. The generated power will normally be self-consumed. On non-business days, the power will be fed into the grid using the net-metering scheme. A remote monitoring system to monitor the performance of the solar PV system will also be installed.



MP2014-MY01

PV Power Generation and Relevant Monitoring System for the Office Building

Malaysia



Expected GHG
Emission Reductions
179 tCO₂/year



Kuala Lumpur,
Malaysia

Project Owner

Japan : NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc

Malaysia : KEN TTDI SDN BHD

The PV panels installed on the top of building roof in Kuala Lumpur, Malaysia will generate electricity power and contribute to CO₂ reduction.

The solar cell is made of a thin monocrystalline silicon wafer surrounded by ultra-thin amorphous silicon layers. This product offers the industry's leading performance and value; 19.4% conversion ratio. The electricity amount generated on solar panel will be monitored and managed in the data management server.



an example of Installation work of PV



PV mounting structure on metal deck roof



INVERTER



DATA LOGGER

PS2014-1

10MW-scale Solar Power Generation for Stable Power Supply

Mongolia



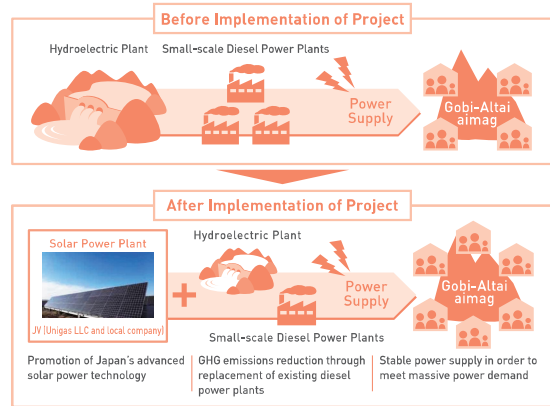
Expected GHG Emission Reductions
7,782 tCO₂/year



Taishir, Gobi-Altai aimag, Mongolia

Implementing Entity :
SAISAN Co.,Ltd.; myclimate Japan Co., Ltd.

The project under consideration aims to construct a 10MW-scale solar power generation system in Taishir, Gobi-Altai aimag, Mongolia, and sell the generated energy to Altai-Uliastai grid. Of all electricity supplied, approximately half is covered by hydroelectric plant, and the rest by small-scale diesel power plants. The implementation of the project reduces GHG emissions by replacing the diesel power plants which have a high emission factor with a solar power generation system, thus resolving the grid's electricity shortage problem due to increasing power demand.



PS2014-2

Installation of Solar PV and Storage Battery with Energy Management System (EMS)

Maldives



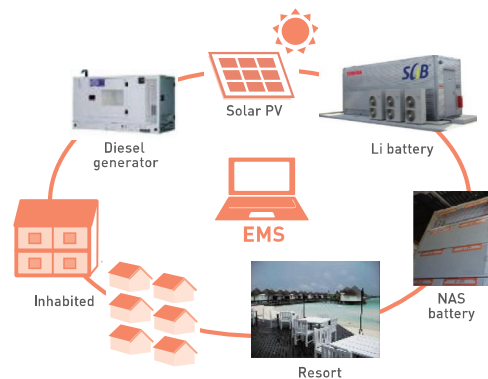
Expected GHG Emission Reductions
4,332 tCO₂/year



Huraa and Kuda Huraa, Kaafu Atoll, Maldives

Implementing Entity :
Pacific Consultants Co., Ltd.
T. T. Network Infrastructure Japan Corporation.

The fuel consumption for power generation is reduced by integrating the power systems of nearby inhabited (Huraa) and resort (Kuda Huraa) islands, which are currently 100% dependent on diesel systems, and introducing a large quantity of renewable energy. Together with solar PVs, advanced Japanese batteries and energy management system (EMS) are introduced to enable a stable power supply with a high level of renewable energy penetration. The project under consideration will aim to reduce GHG emissions by 50%.



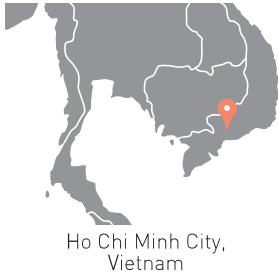
PS2014-3

Introduction of Energy-from-Waste Project in Ho Chi Minh City

Vietnam



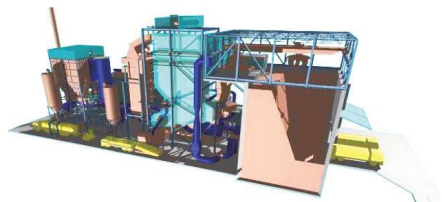
Expected GHG Emission Reductions
42,000 tCO₂/year



Implementing Entity :
Hitachi Zosen Corporation,
K.K. Satisfactory International

The study investigates incineration of all wastes from the household, factories, stores and markets, to produce electricity/energy by incineration and fulfill the electricity production guidelines provided by the Vietnamese government. By effectively utilizing Ho Chi Minh City's wastes, not only are fossil fuels replaced by fuel by waste, green house gases are reduced, the amount of wastes needing treatment/sent to landfills is reduced, resources are effectively used, and natural resource usage is reduced.

We will effectively utilize the "Solid waste-to-energy project innovation assistance mechanism for Vietnam proclaimed as the Prime Minister's Decision dated May 2014".



Energy from Waste plant (out side view)

PS2014-4

Installation of Combined Heat and Power System in Hotel

Indonesia



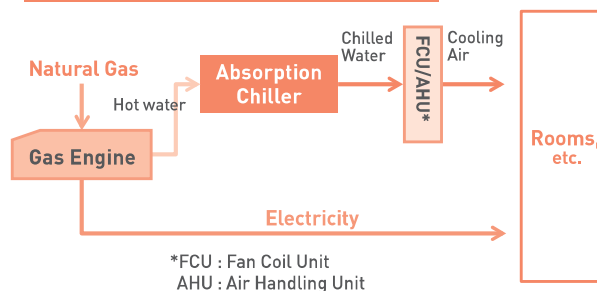
Expected GHG Emission Reductions
4,166 tCO₂/year



Implementing Entity :
Fuji Electric Co., Ltd.

Combined Heat and Power (CHP) System which consists of an 1,000kW class gas engine and an absorption chiller will be installed in a hotel located in Surabaya, East Java Province. By supplying both electricity and chilled water, this system replaces a part of electricity supplied by grid and electricity consumption by chillers. High overall efficiency of CHP system enables reduction of both CO₂ emissions and utility cost.

Energy supply scheme of CHP system



PS2014-5

Energy Saving by Efficiency Improvement of Water Treatment Plants of Phnom Penh Water Supply Authority | Cambodia



Expected GHG Emission Reductions
1,120 tCO₂/year



Implementing Entity :
METAWATER Co., Ltd.
MATSUO CONSULTANTS CO., LTD.

Two main water treatment plants owned by Phnom Penh Water Supply Authority, the biggest water utility company in Cambodia, have been operated since the 1990s. Sub-stations, motors and pump equipment were based on the design of the 1990s, and no post installation changes were made. The facilities have deteriorated and are far less energy efficient than those used currently in Japan. This project under consideration is intended to reduce the GHG emissions by introducing Japanese energy-efficient equipment and the Japanese advanced operation and management.



PS2014-6

Saving Energy through the Installation of High Efficiency Air Jet Loom in Weaving Field | Bangladesh



Expected GHG Emission Reductions
1,478 tCO₂/year

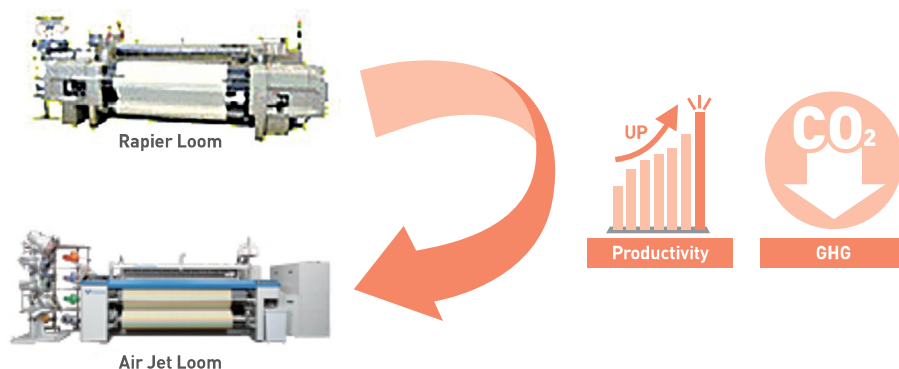


Implementing Entity :
Toyota Tsusho Corporation

The project introduces energy saving air jet looms in Bangladesh which has a thriving textile industry.

It achieves GHG emission reduction by replacing rapier looms with air jet looms that can reduce approximately 70% of energy usage.

A wide dissemination of the technology is sought for in South East Asia where energy and labor costs are rising.



PS2014-7

Saving Energy by Introducing Optimum Pumps in Water Purification Plant

Vietnam



Expected GHG
Emission Reductions
7,517 tCO₂/year



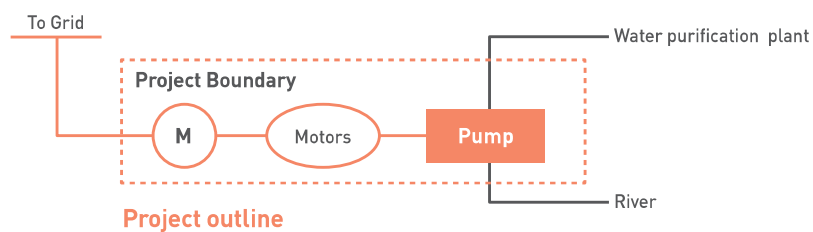
Ho Chi Minh City,
Vietnam

Implementing Entity : Nippon Koei Co.,Ltd

The project plans to introduce optimum pumps which is made by EBARA corporation into existing water purification plant managed by Saigon water corporation(SAWACO) (Number of introduced pumps 3 pumps, 105m³/min X approximately 45m, 900kW). It expects to save energy by 20,000 [kWh/day] by introducing optimum pumps.



Existing plant: Tan Hiep1



Project outline

FS2014-1

Efficiency Improvement of Combined Heat and Power Plant by Thermal Insulation

Mongolia



Expected GHG Emission Reductions
3,960 tCO₂/year

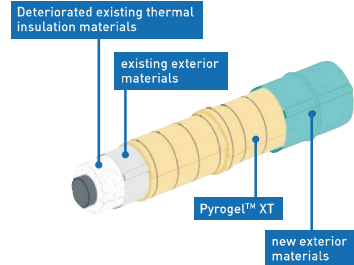


Implementing Entity :
Kanden-Plant Co.,Inc.

This project under consideration aims to improve plant efficiency by means of thermal insulation installation of “Overwrapping Insulation Method (ECO-AIM)” at coal fired thermal power plants in Mongolia.

The installation method is just to roll the thermal insulation material, “Pyrogel XT”, over the deteriorated existing thermal insulation materials on the existing facilities.

This method also provides measures on the occupational safety and health such as avoiding asbestos scattering.



“Eco-AIM Method (increase thermal insulation method of maintenance)”



FS2014-2

Waste Heat Recovery and Utilization in Textile and Garment Factories

Bangladesh



Expected GHG Emission Reductions
2,109 tCO₂/year

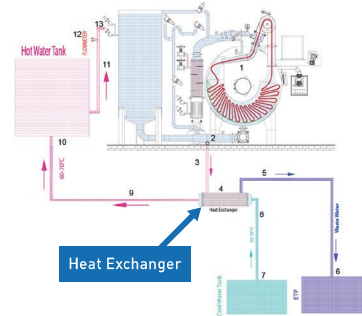


Implementing Entity :
PEAR Carbon Offset Initiative , Ltd.
Kurose Chemical Equipment Co. Ltd.

The project under consideration is to install heat exchangers for recovering waste heat from the textile dyeing process and applying the heat for the textile dyeing process.

The project targets three Bangladesh textile and garment factories. The factories are N.A.Z. Bangladesh Ltd., Giant Textile Ltd. And Landmark Fabrics located in the Gazipur district and Savar Upazilla of Dhaka Division.

The core part of the technology is the heat exchanger and other related equipment provided by the Japanese manufacturer, Kurose Ltd. The project recovers waste heat from waste hot water of the textile dyeing process by using heat exchanger and heating the fresh water which is used for textile dyeing processing.



FS2014-3

20MW-scale Geothermal Power Generation

Ethiopia



Expected GHG Emission Reductions
99,882 tCO₂/year

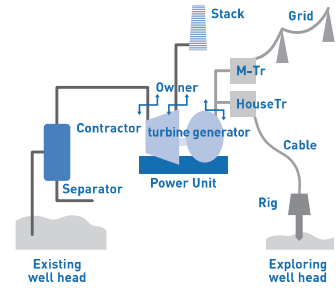


African Great Rift Valley, Ethiopia

Implementing Entity :

Mizuho Information & Research Institute, Inc.

Corbetti Power Company, mainly comprised of Reykjavik Geothermal from Iceland, is planning to develop a 500MW geothermal power generation project in Corbetti geothermal field in Ethiopia. The project under consideration aims to supply electricity to the national grid, achieving a GHG emissions reduction as well as contributing to the power diversification of the country, which are important pillars of the national energy policy. The objective of this study is to evaluate the technical and economic feasibility of introduction of a 20MW-scale wellhead geothermal generation unit as the first phase of the project.



General composition of geothermal wellhead generation system



FS2014-4

Energy Saving by Micro Flush Toilet

Kenya



Expected GHG Emission Reductions
33.1 tCO₂/year

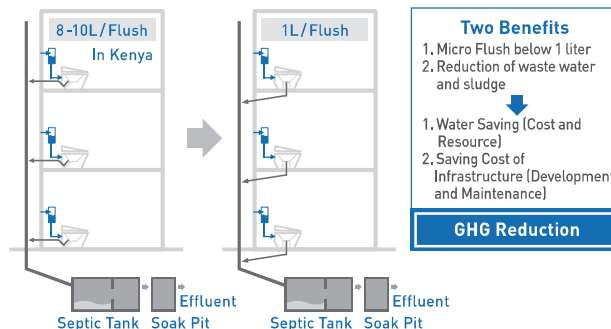


Nairobi City, Kenya

Implementing Entity :

LIXIL Corporation

This study is aimed at reducing energy-related treatment water and waste water as well as contributing to water saving and environmental improvement by installing super-water-saving toilets (11,200 toilet units) developed by LIXIL Corporation into the low-cost housing project (5,600 house units) of the National Housing Corporation (NHC) in Kenya.



FS2014-5

Energy Saving for Irrigation Facility by Introducing High-efficiency Pumps

Vietnam



Expected GHG
Emission Reductions

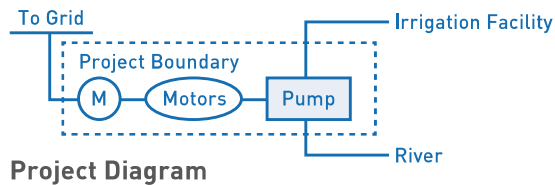
162 tCO₂/year



Implementing Entity :
Nippon Koei Co.,Ltd, EBARA Corp.

The study targets an irrigation facility which is managed by the Department of Agriculture and Regional Development in Hanoi City.

By introducing high efficiency pump which is produced by Ebara corporation into irrigation system (total 25 pumps which are 4000m³/h and 75kW each), it is planned to reduce total amount of electricity consumption and GHG emissions. It is expected to save 12,000kWh per year per 1 pump by introducing Japanese high efficiency pump in substation to other countries' pump which have high market share in Vietnam.



Project Diagram



FS2014-6

40MW-scale Hydro Power Generation in Lao Cai Province

Vietnam



Expected GHG
Emission Reductions

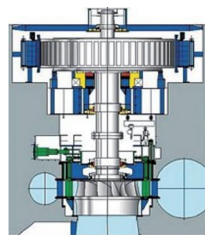
98,144 tCO₂/year



Implementing Entity :
Kyushu Electric Power Company, Voith Fuji Hydro K. K

Vietnam's electric power demand is estimated to rise by approximately 13% annually. The objective of the study is to promote medium-small scale hydropower as an alternative of thermal power plants and to reduce CO₂ emissions.

In the project under consideration, advanced hydropower technologies, which are based on long experience and lead to a long-term stable plant operation, are to be provided from Japan to secure competitiveness against low price and low quality equipment. Furthermore, a financing scheme for establishing a feasible business model is to be investigated.



Section of Vertical Shaft
Francis Turbine and Generator

■Soft technology

•Appropriate investigation, design, construction planning considering river flow and characteristics at the site, etc.

■Hard technology

•Hydro turbines and generators are highly efficient and durable, require low maintenance and investment, and give little negative environmental impact.

FS2014-7

Recovery and Utilization of Biogas from Mixed-treatment of Waste and Septage

Vietnam



Expected GHG Emission Reductions
21,800 tCO₂/year

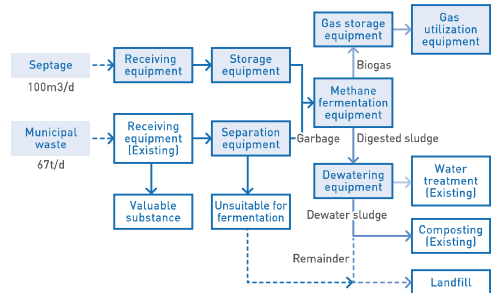


Implementing Entity :

Kubota Corporation, Nikken Sekkei Civil Engineering Ltd., The Japan Research Institute Ltd.

Cau Dien, an intermediate treatment facility, ferments garbage as part of the municipal solid waste collected in Hanoi City, to create compost.

Our new project under consideration introduces a modern methane fermentation system which can treat a mixture of garbage and septage, and we expect it to improve public sanitation in the surrounding areas. Recovered biogas, which can be used as boiler fuel, replaces fossil fuels, generates energy for the treatment facility and improves energy saving. Digested sludge after fermentation can be made into compost for agriculture.



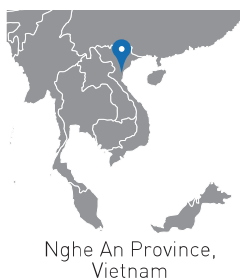
FS2014-8

Introduction of Co-generation System Using Bagasse in Sugar Factory

Vietnam



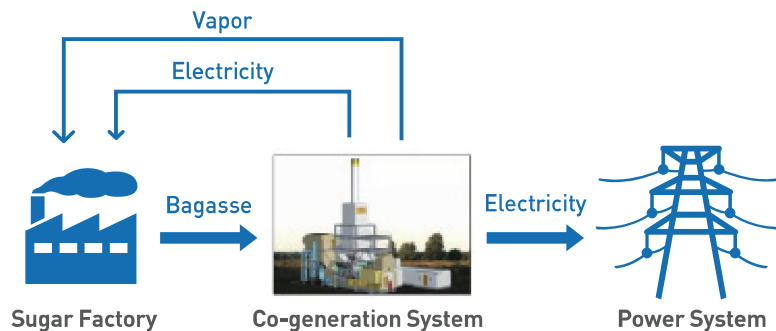
Expected GHG Emission Reductions
92,199 tCO₂/year



Implementing Entity :

Japan NUS Co., Ltd

Nghe An Sugar Company (NASU), one of the largest sugar companies in Vietnam, is planning to introduce a 40MW co-generation system that runs with bagasse from the sugar production process. All vapor from the system is consumed in the sugar production process. The 6MW of electricity generated is used for internal processes and the surplus 34MW is sold to EVN (VietNam Electricity). GHG emissions reduction is achieved by substituting grid electricity with electricity from biomass.



FS2014-9

Biomass Utilization in Cement Kiln

Lao PDR



Expected GHG
Emission Reductions
21,600 tCO₂/year

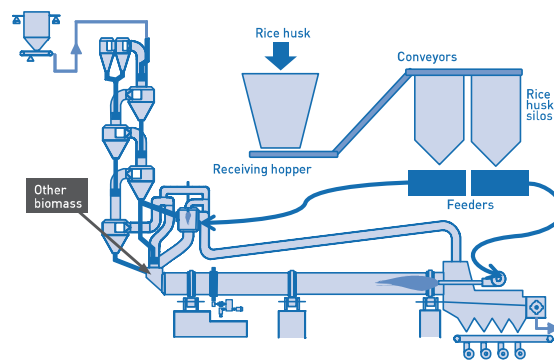


Vang Vieng, Vientiane Province,
Lao PDR

Implementing Entity : Taiheiyo Engineering Corporation

By utilizing agricultural biomass in Lao PDR as an alternative fuel to cement manufacturing process, a large CO₂ emission reductions can be achieved, as well as saving coal resources.

The proposed process using Japanese technology is shown below.



FS2014-10

Waste Heat Recovery and Electricity Generation in Flat Glass Production Plant

Indonesia



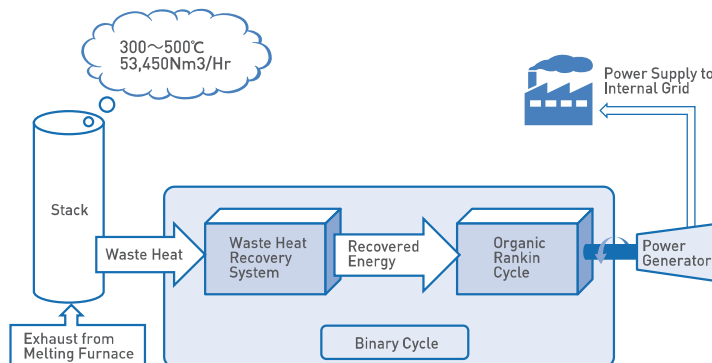
Expected GHG
Emission Reductions
2,768 tCO₂/year



Jakarta,
Indonesia

Implementing Entity : Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.

The purpose of the Project under consideration is to achieve efficient use of energy in order to respond to scheduled electricity tariff hikes. The Project involves introduction of waste heat recovery and electricity generation system with the generation capacity of 450kW. The Project displaces electricity currently purchased from the grid and contributes to the reduction of use of grid electricity which leads to greenhouse gas emission reductions.



FS2014-11

Introduction of High Efficient Old Corrugated Cartons Process at Paper Factory

Indonesia



Expected GHG Emission Reductions
8,000 tCO₂/year



Implementing Entity :

Nomura Research Institute, Ltd. & Aikawa Iron Works Co., Ltd.

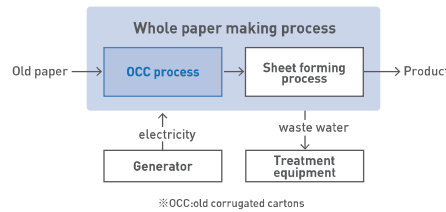
The study plans to target reductions of energy use in the corrugated carton production process in Indonesia. A corrugated carton production process consists of two main processes, an old corrugated cartons process and a sheet forming process.

This project aims to reduce power use in the former process.

To realize the reduction of power use (about 10%) per ton produced and contribute to CO₂ reduction by introducing Japanese technology for a high-efficient system and OCC process to a newly built factory in Fajar of Indonesia (holding the second largest manufacturing share).

In the OCC process, the sheet-paper material is made by removing foreign substances using multiple machines from ground and then liquefied old paper with water.

This process is composed of about 30 units of machinery. The high efficiency of the machinery makes the motor power requirement of each unit small, realizing an energy saving of approximately 10%.



FS2014-12

3.7MW Run-of-river Hydro Power Generation in Sulawesi

Indonesia



Expected GHG Emission Reductions
12,661 tCO₂/year



Implementing Entity :

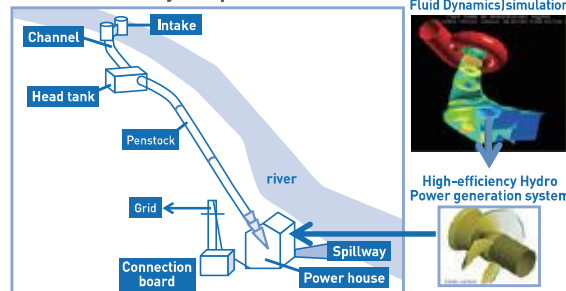
Japan NUS Co.,Ltd.

South Sulawesi relies heavily on the fossil fuels that lead to carbon dioxide emissions.

Taking advantage of the abundant natural resources such as the rough terrain and abundant water resources, this project under consideration will introduce run-of-river hydroelectric power generation utilizing natural resources. The run-of-river system is environmental load-reducing hydropower.

This project will introduce a high-efficiency water wheel using a flow analysis technique that brings out fully the energy potential of the site.

Run-of-river hydro power



FS2014-13

Promotion of Electric Vehicle for Taxi Usage

Costa Rica



Expected GHG Emission Reductions

580 tCO₂/year



San Jose and Liberia, Costa Rica

Implementing Entity :
Nissan Motor Co., Ltd.

The government of Costa Rica is targeting to achieve carbon neutral by 2021, and is putting high priority of de-carbonization in the Transport Sector, which occupies 51% of total energy consumption in the nation. This project under consideration aims to reduce GHG emissions by promoting Electric Vehicles (100 units expected) in the taxi fleet together with relevant charging infrastructure.



Normal Charger



Quick Charger

FS2014-14

Solar Power Generation System

Palau



Expected GHG Emission Reductions

144 tCO₂/year



Koror State, Palau

Implementing Entity :
Inter Action Corporation

A 160KW-capacity solar power generating plant which comes with lithium-ion batteries will be installed at the Palau International Coral Reef Center located in the state of Koror, Republic of Palau.

Installation of the solar power system in the areas that are electrified by diesel generators limits the use of electricity generated by combusting fossil fuels and reduce greenhouse gas emissions.



FS2014-15

10MW-scale Biomass based Power Generation

Sri Lanka



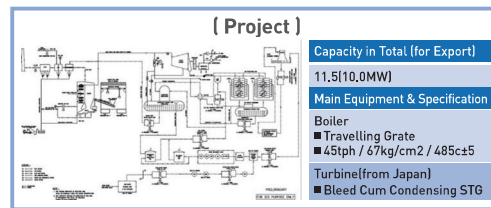
Expected GHG
Emission Reductions
43,636 tCO₂/year



Ampara District, Eastern
Province, Sri Lanka

Implementing Entity : Obayashi Corporation & EX Research Institute Limited

This project under consideration aims to operate a power plant using a sustainable short-rotation crop as the main fuel for its power generation. Electricity to be generated at the power plant is exported to the National Grid. Sri Lanka has set up National Policy to promote electricity supply from renewable energy sources for up to 20% of the total nation's grid electricity supply by 2020.



Partial Replacement



Power



FS2014-16

Introduction of Waste to Energy Plant in Yangon City

Myanmar



Expected GHG
Emission Reductions
1,500 tCO₂/year

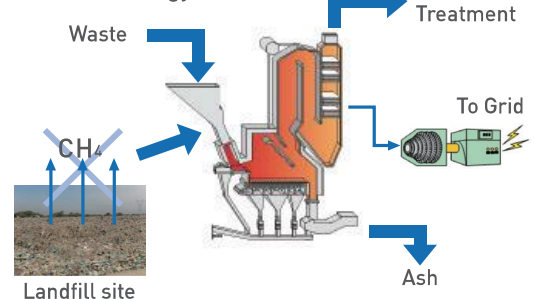


Yangon City,
Myanmar

Implementing Entity : JFE Engineering Corporation

By introducing a Waste-to-Energy plant, the reduction of the CH₄ emissions from landfill disposal sites and the substitution of electricity generated with fossil fuel reduce GHG emissions, reduce electricity shortages and achieve efficient waste treatment.

Waste-to-Energy Plant





Expected GHG Emission Reductions
44,900 tCO₂/year

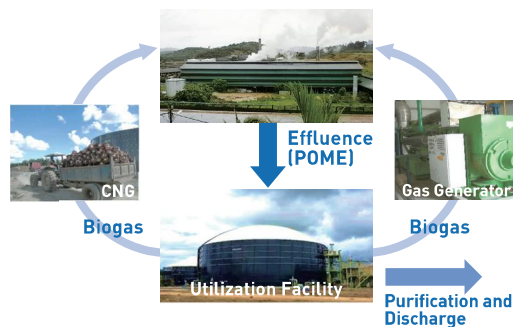


Tanintharyi Division, Myanmar

Implementing Entity :

Nikken Sekkei Civil Engineering Ltd.(Main); Japan Research Institute, Limited(Partner); KUBOTA Corporation(Cooperator)

It is planned to study introduction of the methane fermentation facilities and the gas utilization equipment by Kubota Corporation to the wastewater-from-palm-oil mill (POME) located in Tanintharyi Division in southern Myanmar. The fossil fuel used in palm collection trucks and private power generation in the mill can be replaced by biogas. In addition, because the naturally occurring methane in a wastewater pond can be suppressed, further GHG reduction can be expected. Moreover, since POME contains a high concentration of organic matter, this system can improve the water quality of POME, thereby improving the water environment in the area.



REDD+ Demonstration Studies (REDD+)

REDD+2014-1

REDD+ in Luang Prabang Province

Lao PDR



Expected GHG Emission Reductions
70,000 tCO₂/year

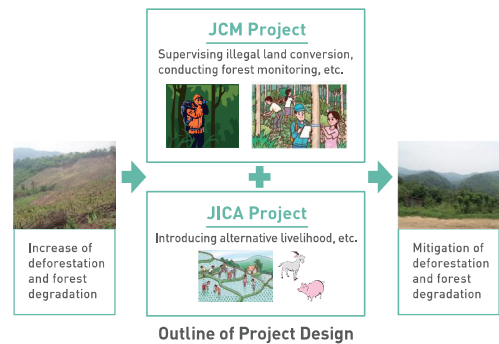


Implementing Entity :

Mitsubishi UFJ Research and Consulting,
Japan Forest Technology Association and Marubeni Cooperation

This study aims to monitor the effectiveness of REDD+ activities and quantify the amount of GHG emissions reductions by REDD+ activities in a part of Phonxay District, Luang Prabang Province (30,000ha), a location with severe deforestation and forest degradation mainly due to shifting cultivation.

REDD+ activities will be implemented based on JICA's activities (e.g. introduction of alternative livelihoods) and will be promoted by participatory methods with local people.



REDD+2014-2

Improvement of REDD+ Implementation Using IC Technology

Indonesia



Expected GHG Emission Reductions
180,000 tCO₂/year



Implementing Entity :

Mitsubishi Research Institute, Inc.

In Indonesia, deforestation and forest degradation have become main Greenhouse Gas (GHG) emissions sources. By reducing emissions from deforestation and forest degradation, the project under consideration should contribute towards sustainable development of the local region.

In the project, high-spec MRV methodologies are implemented by making the best use of Information Communication (IC) Technologies. Specifically, MRV methodologies, which enable more accurate land-cover classification by use of high resolution remote sensing imaginary data, are being considered.

Also being considered are management approaches for improving work efficiency of on-site sampling data collection activities with portable IC devices and for increasing operational efficiency with integrated databases.



The GHG reductions would be achieved by conducting the following activities:

- Forest Patrols
- Forest Conservation
- Plantations



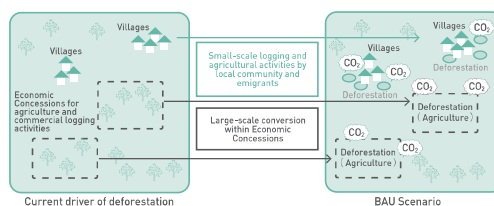


Maximum
Expected GHG
Emission Reductions
545,000 tCO₂/year



Implementing Entity :
Conservation International Japan and Asia Air Survey

Small-scale logging and agricultural activities by local communities and large-scale conversion of forest into industrial and agricultural land have been major deforestation drivers in the Prey Long Area and Seima Area. The target project aims to reduce deforestation by law enforcement (patrolling the forest against illegal activities), community engagement, and livelihood improvement (involvement in the forest patrol and development of alternative means of living).



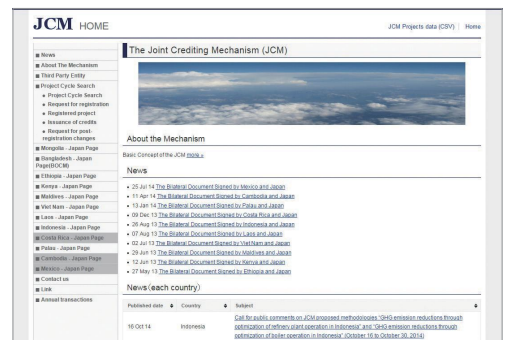
04

Relevant websites

The Joint Crediting Mechanism

The Joint Crediting Mechanism (JCM) website is an official platform providing essential information and updates for the JCM to the public.

<https://www.jcm.go.jp/>



Global Environment Centre Foundation

Global Environment Centre Foundation (GEC) is serving as the commissioned secretariat for the Financing Programme and Study Programme by the MOEJ. GEC provides a database for JCM Feasibility Studies reports and related information.

GEC: <http://gec.jp/>

Database: <http://gec.jp/jcm/>



New Mechanism Information Platform

The New Mechanism Information Platform provides relevant information and updates on the implementation of the JCM including those on the JCM related programs by the government of Japan.

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

