Results and Progress of the MOEJ's Financing Programme & Study Programmes for JCM Projects in 2013

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  - Financing Programme for JCM Model Project
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- Statistics of the JCM Programmes
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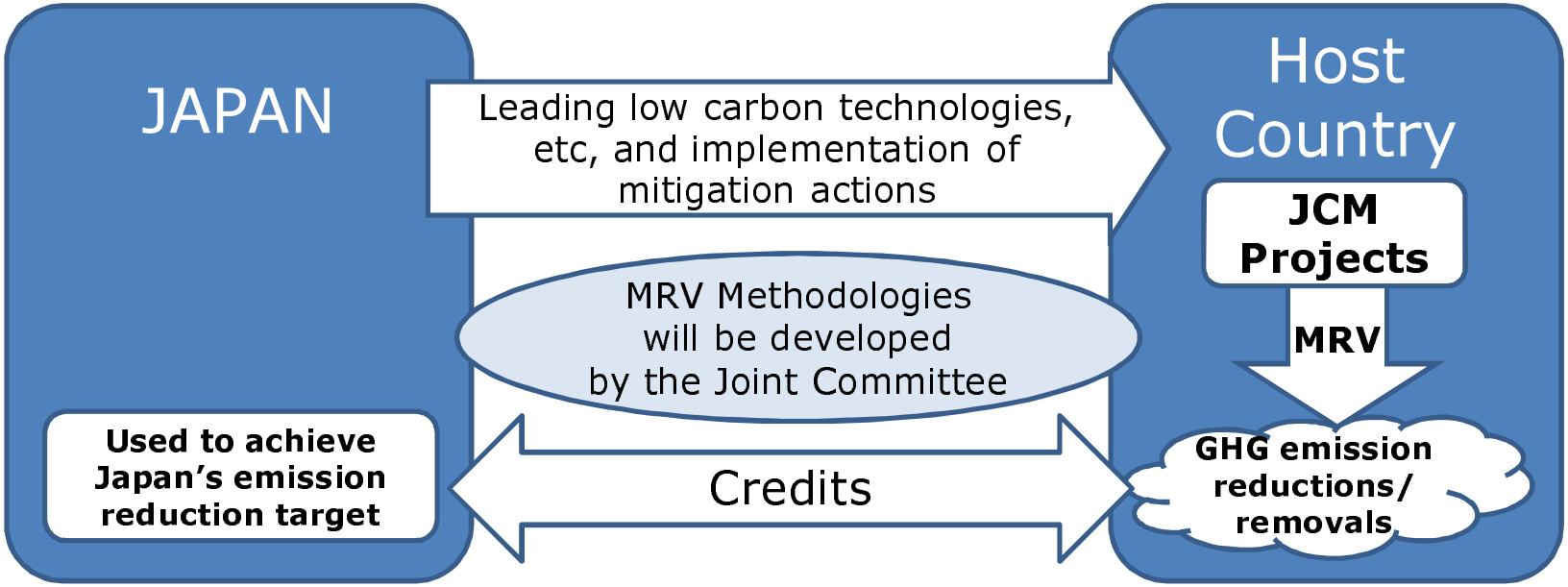
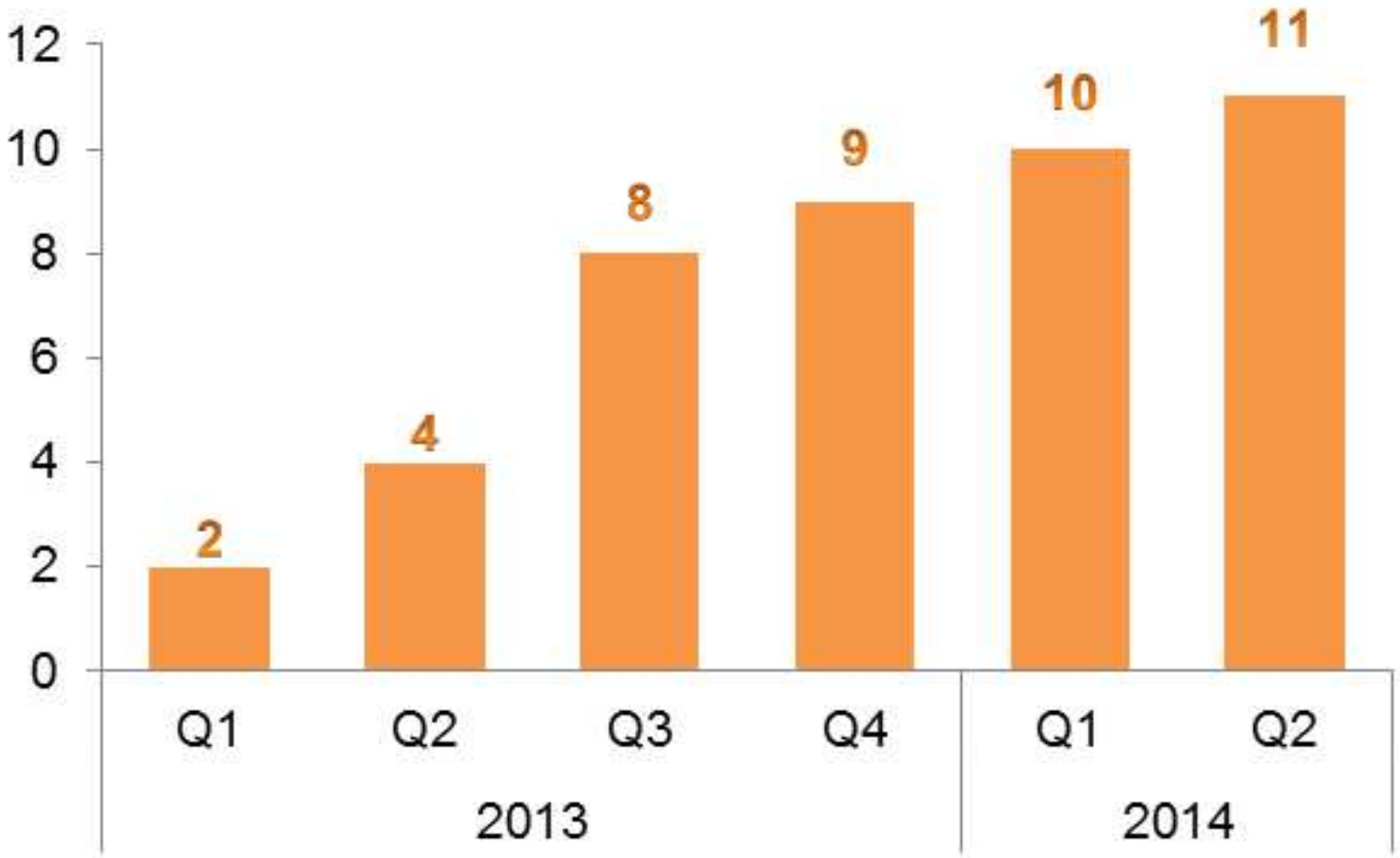
Background

Background: What's the JCM?

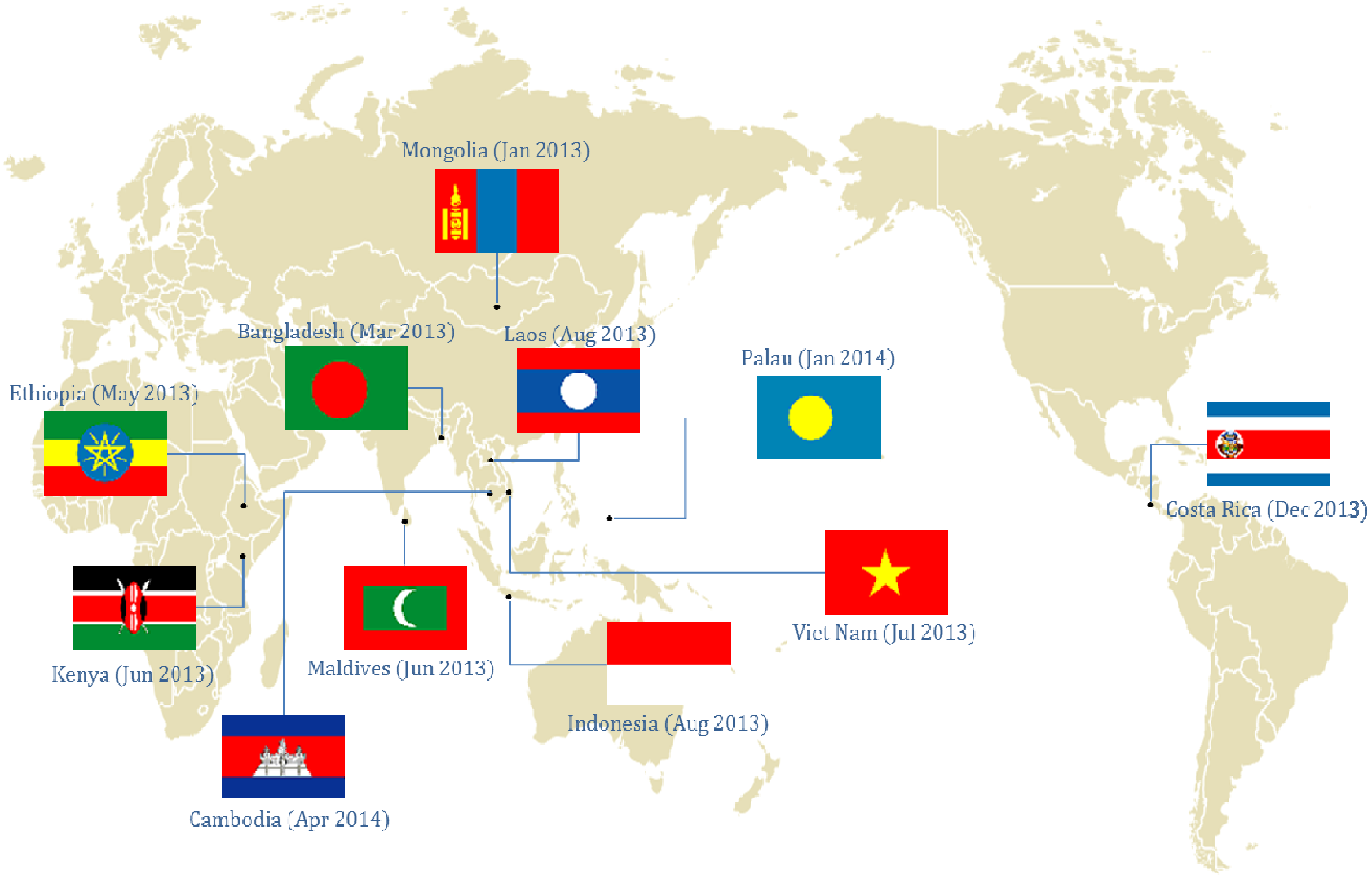


Slide 3 of "Recent Development of The Joint Crediting Mechanism (JCM)" (May 2014, Government of Japan)

Background: Signed Countries for the JCM



Background: Signed Countries for the JCM



JCM Promotion Scheme by MOEJ

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Financing Programme for JCM Model Project by MOEJ

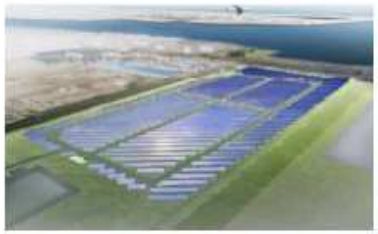
The budget for FY 2014
*1.2 billion JPY (approx. **USD12 million**) per year by FY2016*
(total 3.6 billion JPY)

Japan

Finance part of an investment cost (**up to the half**)

Conduct MRV and expected to deliver JCM credits

International consortiums
(which include Japanese entities)



- Scope of the financing: facilities, equipment, vehicles, etc. which reduce CO_2 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.

Slide 35 of "Recent Development of The Joint Crediting Mechanism (JCM)" (May 2014, Government of Japan)

JCM Feasibility Studies and other activities

Capacity Building Programmes

Region

Asia, Africa, Latin America, and Small Island countries

Activities

Consultations, workshops, seminars, training courses and study tours, etc.

Scope

Facilitating understanding on the JCM rules and guidelines, enhancing capacities for implementing MRV

Target

Government officials, private sectors, candidate for validation & verification entities, local institutes and NGOs

Feasibility Studies

Objective

Elaborating investment plan on JCM projects, developing MRV methodologies and investigating feasibility on potential JCM projects,

Type of studies

JCM Project Planning Study (PS)	To develop a JCM Project in the next fiscal year
JCM Feasibility Study (FS)	To survey feasibility of potential JCM projects
Large Scale JCM Feasibility Study	To survey feasibility of potential large scale JCM projects including city level cooperation

Reports

Available at GEC (Global Environment Centre Foundation) website <URL: http://gec.jp >

Outreach

New Mechanisms Information Platform website provides the latest information on the JCM <URL: http://www.mmechanisms.org/e/index.html>

Slide 34 of “Recent Development of The Joint Crediting Mechanism (JCM)” (May 2014, Government of Japan)

Statistics of the JCM Programmes

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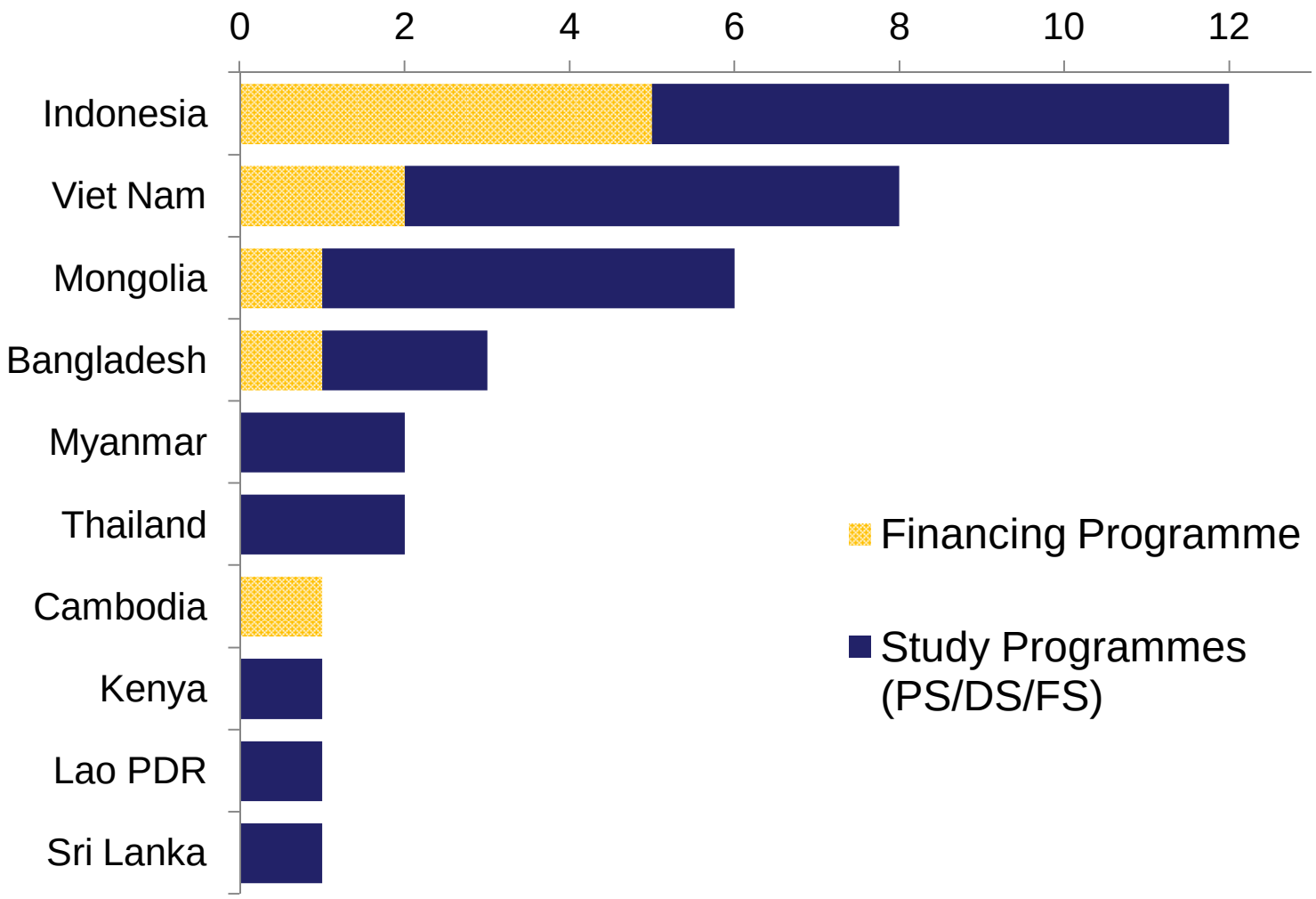
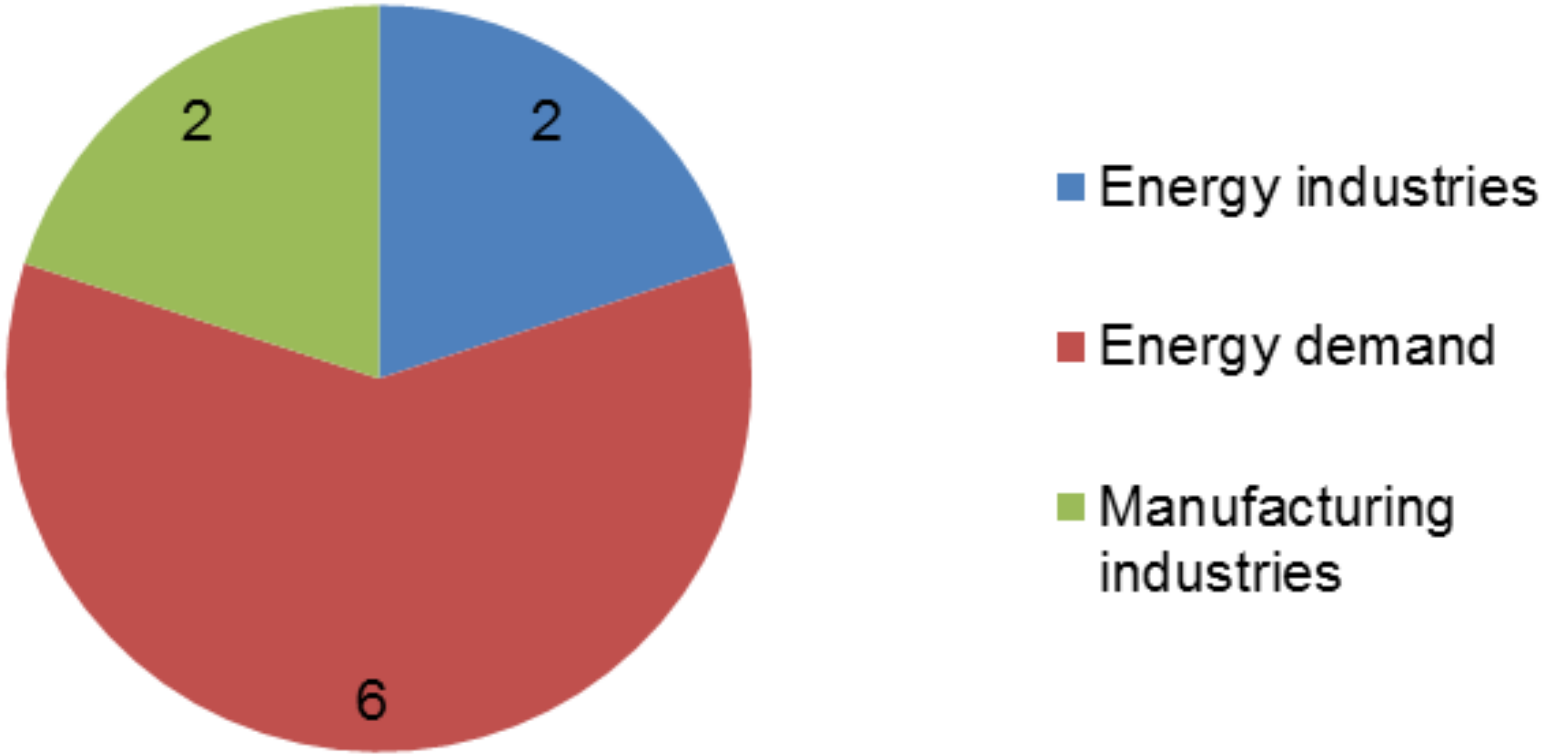
Statistics: JCM Projects by Country in 2013



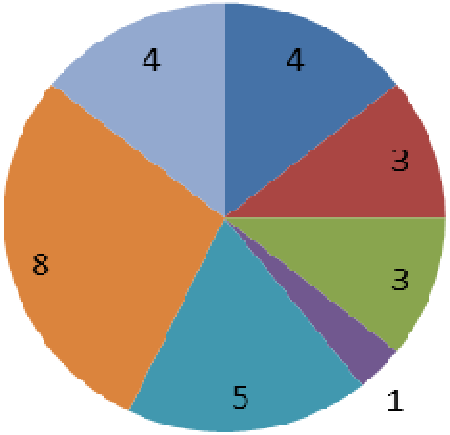
Statistics: JCM Model Projects by Sector under the Financing Programme in 2013



Total: 10 projects

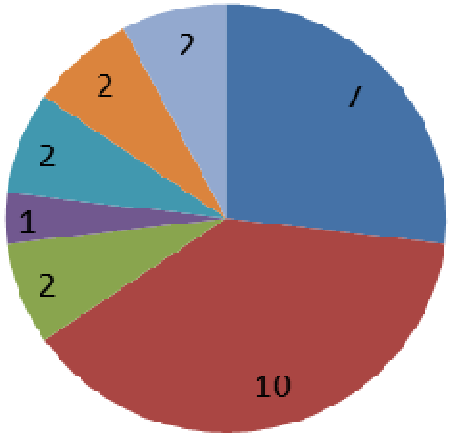
Statistics: JCM Study Projects by Sector

2012 Study Programmes (PS/DS/FS)



Total: 28 projects

2013 Study Programmes (PS/DS/FS)



Total: 26 projects

- Renewable Energy
- Energy Efficiency Improvement
- Waste management
- Waste Heat Utilisation
- Transport
- Biomass Utilisation
- Land Use Management

Overview of JCM Model Projects and Planning/Demonstration/Feasibility Studies in 2013

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

Mongolia:
- ●Upgrading and Installation of Centralized Control System of High-Efficiency Heat Only Boiler (HOB)
- ◆10MW-Scale Solar Power Plant and Rooftop Solar Power System
- ■Centralization of Heat Supply System by Installation of High Efficiency Heat only Boiler (HOB)
- △10MW-Scale Solar Power Generation for Stable Power Supply
- △Energy Conservation at Cement Plant
- △Improvement of Thermal Installation and Water Cleaning/Air Purge at Power Plants

Lao PDR:
- ■Promotion of Use of Electric Vehicles (EVs)

Thailand:
- ■Dissemination of High-Efficiency Inverter Air Conditioners
- △Heat Recovery to Generate Both Cooling and Heating Energy

Bangladesh:
- ●Brick Production based on Non-Firing Solidification Technology
- △High-Efficiency Rice Husk Based Cogeneration
- △Solar Power Generation with Long-Life Storage Battery in Non-Electrified Regions

Viet Nam:
- ●Integrated Energy Efficiency Improvement at Beer Factory
- ●Energy Efficient NH3 Heat Pumps to Marine Products Processing Industry
- ◆Anaerobic Digestion of Organic Waste for Cogeneration at Market
- ◆Integrated Energy Efficiency Improvement at Beer Factories
- ■Energy Efficiency Improvement of Glass Furnace
- △Promotion of Public Transport Use by Park-&-Ride System
- △Energy Saving Glass Windows for Buildings
- △REDD+ with Livelihood Development and Biomass-based Power Generation

Kenya:
- △Expansion of Geothermal Project

Indonesia:
- ●Energy Saving for Air-Conditioning and Process Cooling at Textile Factory
- ●Energy Savings at Convenience Stores
- ●Energy Efficient Refrigerants to Cold Chain Industry
- ●Energy Saving by Double Bundle-Type Heat Pump at Beverage Plant
- ●Energy Saving for Air-Conditioning at Textile
- ◆Energy Saving by High-Efficiency Centrifugal Chiller
- ◆Power Generation by Waste Heat Recovery in Cement Industry
- ◆Regenerative Burners for Aluminium Melting Furnaces
- △Anaerobic Treatment for Wastewater from Rubber Plants
- △Solar Power System at Off-Grid Cell Towers
- △Improvement of REDD+ Implementation Using IC Technology

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

Myanmar:
- △Geothermal Binary Power Generation

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

Sri Lanka:
- △Sustainable Biomass-Based Power Generation

Cambodia:
- ●Small-scale Biomass Power Generation by Using Stirling Engines

Examples in Indonesia

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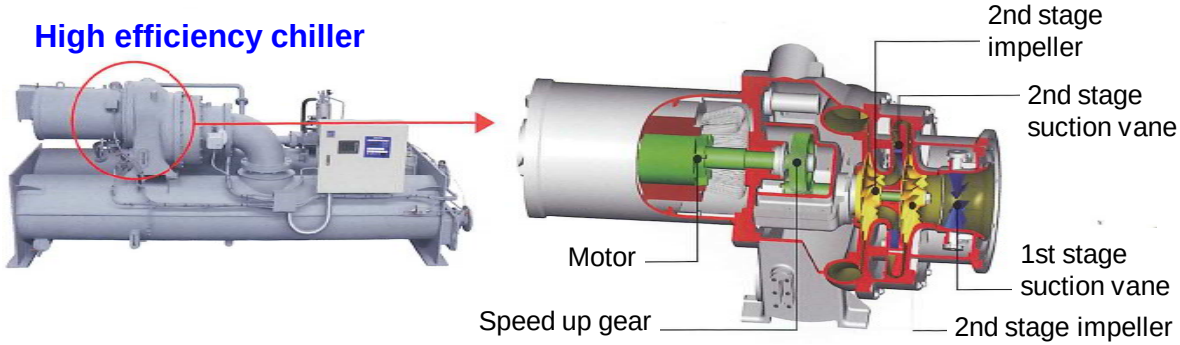
Energy Saving for Air-conditioning and Process Cooling at Textile Factory

PP from Japan: Ebara Refrigeration Equipment & Systems / PP from Indonesia: PT. Primatexco, PT. Ebara Indonesia

Outline of GHG Mitigation Activity

In the textile factory in Indonesia, humidity control is indispensable for maintaining product quality and massive energy, which is required for adjustment of factory air conditioning. The target factory will replace old-fashioned chillers (230USRt and 250USRt) with high efficiency chillers (500USRt), in order to save energy and mitigate CO2 emission.

High efficiency chiller



USRt: defined as the heat of fusion absorbed by melting 1 short ton of pure ice at 0 degree Celsius in 24 hours]

High efficiency chillers adopt high-performance economizer cycle, and super-cooling refrigerant cycle, in order to save energy. Also, the chiller uses low-pressure refrigerant HFC-245fa for avoidance of ozone layer destruction.

Expected GHG Reductions

247-715tCO2/year

← By installing high efficiency chillers, energy saving (40-116kW/hour) will be achieved. To keep the textile quality in the factory, the chiller is operated 8,322 hours/year (95% of annual operation hours).

→ Annual energy savings : 332-965MWh＝40-116kW/hour x 8,322hours

→ Grid emission factor (JAMALI, 2010) : 0.741 tCO2/MWh

Site of JCM Project

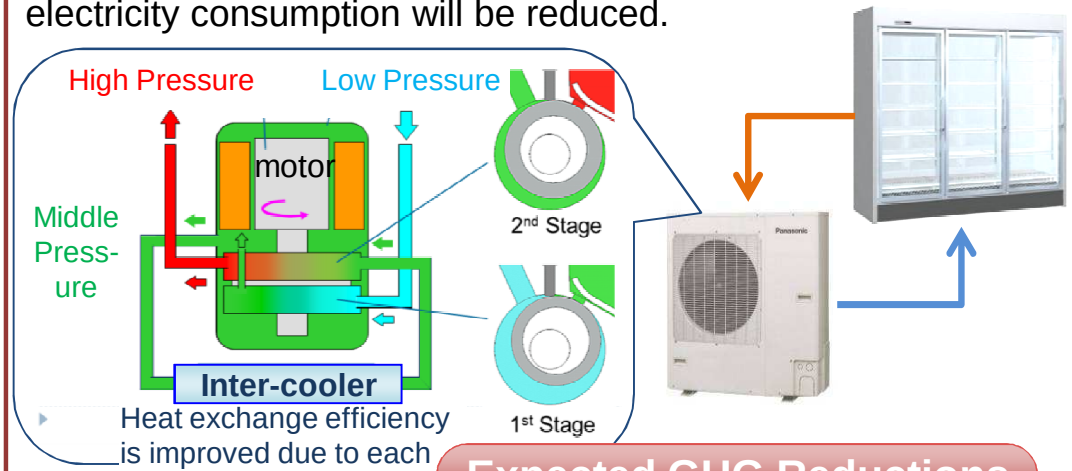
PT. Primatexco Indonesia factory is located in Batang city, Central Java, Indonesia.

Energy Savings at Convenience Stores

PP from Japan: Lawson / PP from Indonesia: PT. Midi Utama Indonesia Tbk

Outline of GHG Mitigation Activity

Total electricity consumption of food retail convenience stores will be decreased by the installation of the latest high-efficiency facilities: high-efficiency chillers with natural refrigerant (CO_2 refrigerant), inverter-controlled air-conditioners, and LED lighting. In addition, rooftop photovoltaic power generation systems will be introduced. Then CO_2 emissions due to electricity consumption will be reduced.



Sites of JCM Model Project

15 stores newly opened in and around Jakarta, including Kota Tangerang and Kota Depok.

Expected GHG Reductions

33.1tCO_2/store/yr

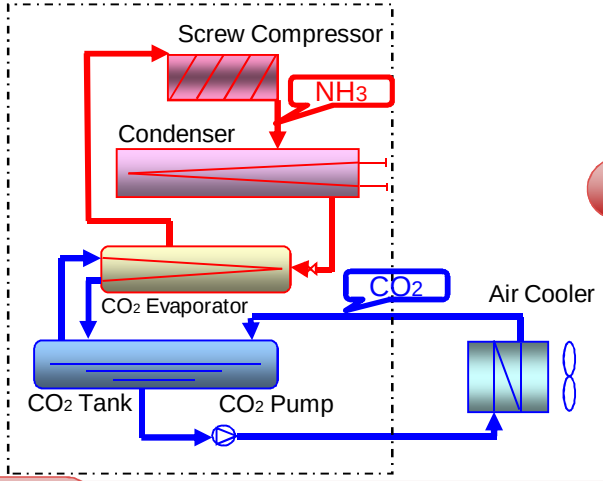
- ← Annual electricity consumptions of 39,001kWh will be reduced.
- ← Comparison of standard facilities:
  - High-efficiency chillers reduce electricity for refrigeration by 14%
  - Inverter air-conditioners reduce electricity for air conditioning by 31%
  - LED lamps reduce electricity for lighting by 37%
- ← Photovoltaic power generation reduce electricity consumptions of 6,311kWh/yr
- ← Grid emission factor used for this calculation is 0.73kgCO_2/kWh

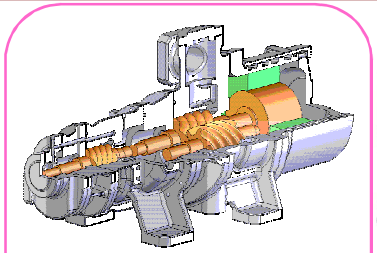
Energy Efficient Refrigerants to Cold Chain Industry

PP from Japan: Mayekawa Manufacturing Company / PP from Indonesia: PT. Adib Global Food Supplies, PT. Mayekawa Indonesia

Outline of GHG Mitigation Activity

The advanced energy efficient non-fluorocarbon cooling system using NH_3 and CO_2 will be introduced in the food industry and logistics industry in Indonesia whose energy consumption is very high, demonstrating its high energy saving impact as well as large amount of GHG emission reduction.
A screw compressor and an IPM (interior permanent magnet synchronous) motor are adopted and operated integrally, to achieve high efficient operation of the cooling facility.



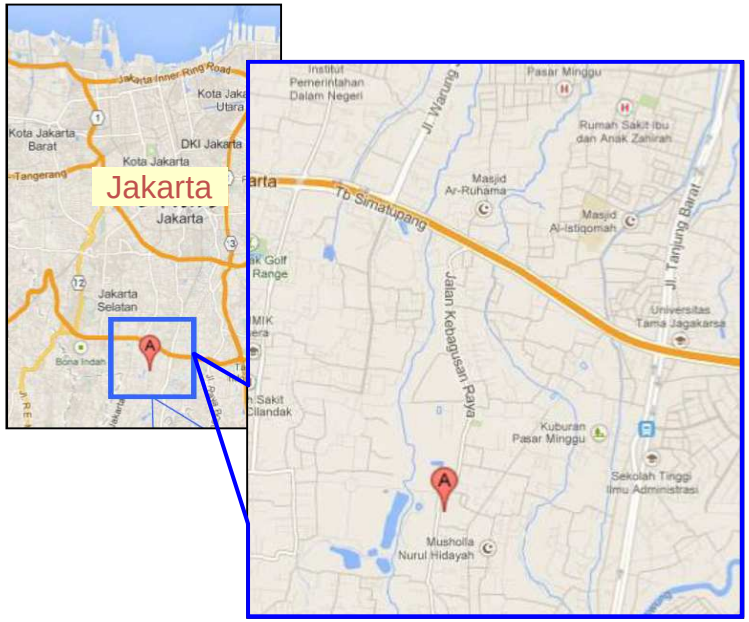


Screw Compressor

Condensing Unit

Sites of JCM Model Project

New cold storage warehouse of PT. Adib Global Food Supplies, located near Jakarta



Expected GHG Reductions

213tCO_2/yr

← Assumed 30% improvement of energy efficiency (reduction of electricity consumption) by high-efficiency cooling facility

← ・Electricity consumption in project scenario: 673MWh/yr
・Electricity consumption in reference scenario: 961MWh/yr
・CO_2 emission factor: 0.741tCO_2/MWh

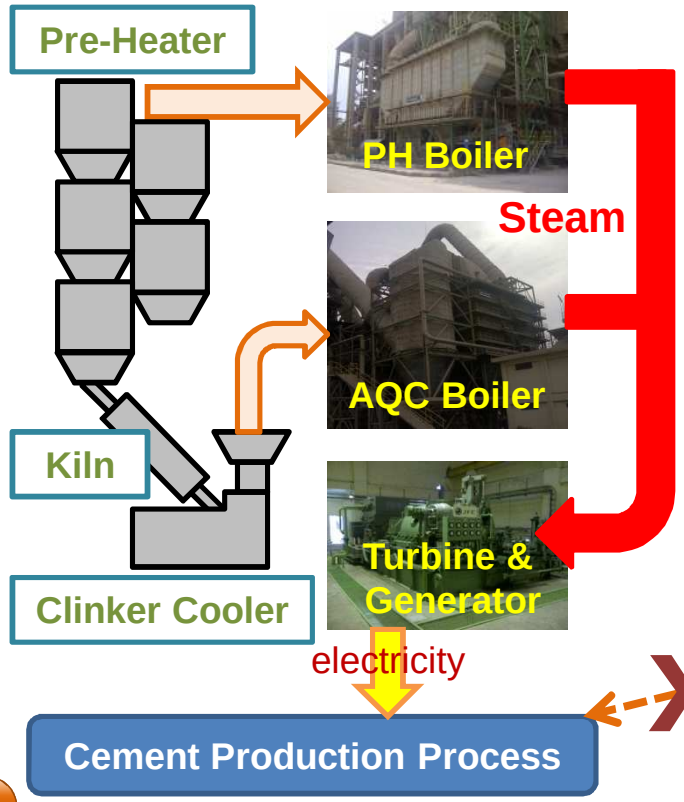
* If the avoidance of the seepage of HFC refrigerant from the reference facility (seepage ratio is assumed as 10%) is take into account, 902tCO_2/yr of GHG would be reduced.

Power Generation by Waste Heat Recovery in Cement Industry

PS Entity: JFE Engineering

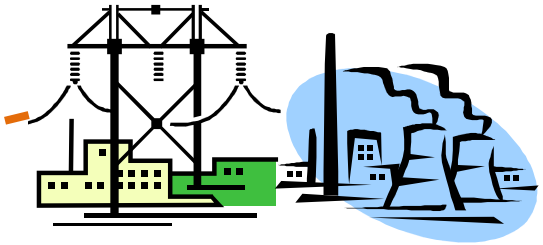
Outline of GHG Mitigation Activity

A waste heat recovery (WHR) System will be introduced in the Tuban Plant of PT Semen Indonesia (PTSI). The WHR System's technology extracts waste heat from the residual process gas exhausted by the cement production line. This waste heat is utilised to generate steam which is then fed to a steam turbine generator. The generator will produce electricity replacing grid electricity based on fossil fuel combustion, to reduce CO_2 emissions.



Site of JCM Project

PT. Semen Indonesia Tuban Plant at Tuban City in East Java



Draft JCM Methodology

This project shall conform to the approved CDM Methodology AMS-III.Q, which presents the following inefficiencies:

- Monitoring of electricity consumption of the WHR equipment
- Establishment of a baseline cap factor based on waste heat potential

Consequently a simplified methodology with a conservative default value of electricity consumption is to be developed.

Expected GHG Reductions

130,000 tCO_2/yr

← The reduction in the Tuban Plant's consumption of electricity from the grid, due to the introduction of the project

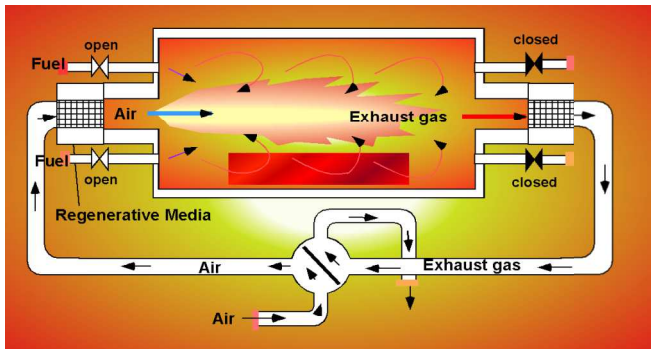
Regenerative Burners for Aluminium Melting Furnaces

PS Entity: Toyotsu Machinery Corporation

Outline of GHG Mitigation Activity

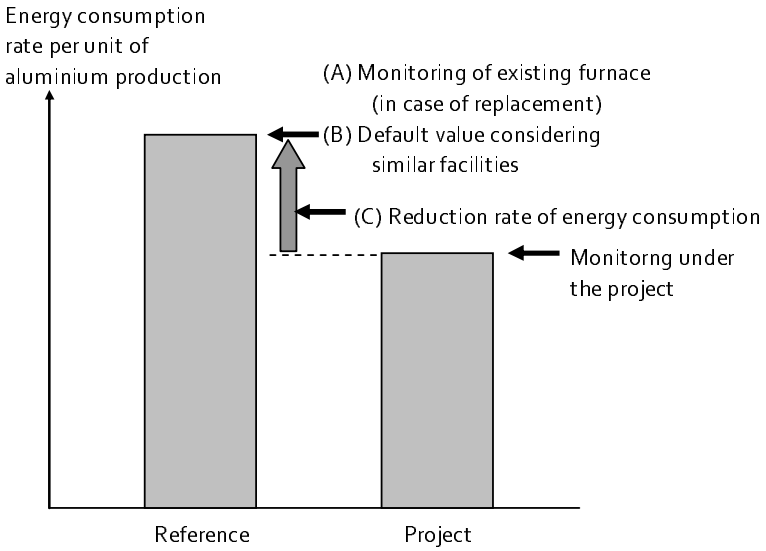
Regenerative burners will be introduced to replace conventional single burners attached to the aluminium melting furnaces, so as to achieve energy efficiency in the automotive and motorcycle parts factory.

Regenerative burners are composed of a pair of burners, to reuse waste heat included in exhaust gas for combustion air preheating.



Draft JCM Methodology

CO_2 reduction is calculated along with the reduction of natural gas consumptions. Between reference and project scenarios, energy consumption rates per unit of aluminium product are compared.



Sites of JCM Project

Factories with aluminium melting furnaces, located in Near Jakarta:

i. PT. TD Automotive Compressor Indonesia
ii. PT. Yamaha Motor Parts Manufacturing Indonesia.
iii. PT. Kyowa Indonesia

Expected GHG Reductions

2,050tCO_2/yr

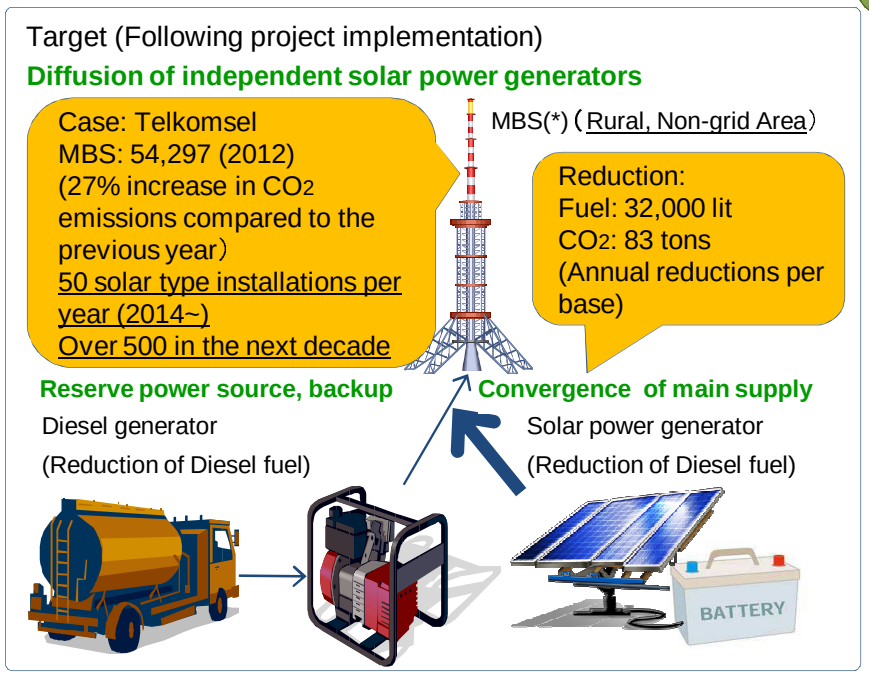
Potential: 170 thousand tCO2/yr
← Similar projects are to be implemented for the aluminium demand of 770kt/yr in 2020.

Solar Power System at Off-Grid Cell Towers

FS Entity : PricewaterhouseCoopers

Outline of GHG Mitigation Activity

Project:
Achieving reductions in CO_2 emissions through the replacement of diesel generators with solar power generators in mobile telecoms base stations.



Contribution to Sustainable Development:

- Energy Security: Demonstrates energy efficiency and the use of green power in the telecoms sector
- Supporting Remote Communities: Solar power mobile base stations provide reliable remote telecommunication for communities in rural and remote areas

Sites of JCM Project

Non-grid connected rural area in East Indonesia. Final locations will be determined through discussion with Telkomsel.

Draft JCM Methodology

Applicable JCM methodology will be developed based on the two approved small-scale CDM methodologies:
AMS-I.A “Electricity generation by the user”
AMS-I.F “Renewable electricity generation for captive use and mini-grid”

Expected GHG Reductions

Estimated CO_2 emission reductions in Indonesia, based on assumed installation of 10,000 new mobile base stations per

Estimated GHG reductions	83tCO_2/year, in case of 1 BTS
GHG reduction potential	41,300tCO_2/year, in case of 500 BTS

Lessons Learned and Way Forward

- Various JCM Model Projects and Studies have been undertaken, and more JCM projects need to be developed utilizing the Study Programmes.
- The MOEJ's Financing programme have worked as a strong trigger for low carbon investment, but the good understanding of co-financiers on JCM is also the key for success.
- MRV methodologies have been simultaneously developed to reduce the burden for MRV activities. Various data for setting default values and reference scenarios needs to be systematically collected.

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For further information:

http://gec.jp/main.nsf/en/Activities-Climate_Change_Mitigation-Top

Contact:

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