

Seminar on the Joint Crediting Mechanism (JCM) Implementation in Thailand

NTT Data
Global IT Innovator



「Project to Accelerate Low Carbonization in Newly Developed Industrial Estate Through Ecological Industrial Town Concept/ Kitakyushu-Chiangmai Province, IEAT and DIW Cooperation Project」

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NTT Data Institute of Management Consulting, Inc.
Socio & Eco Strategic Consulting Unit

0. FY2018 City to City Collaboration Program by MOEJ

FY2018 Cities joining the city to city collaboration program by MOEJ

1. **Quezon City (Philippines) – Osaka city**
 - Energy saving technologies, Solar PV system installation and retrofit of waste collection truck
2. **Bangkok and Laem Chabang (Thailand) – Yokohama city**
 - CO2 emission reduction and to become “Smart Ports”
3. **Davao city (Philippines) – Kitakyushu city**
 - Support for a development of local climate change action plan
4. **Phnom Penh city (Cambodia) – Kitakyushu city**
 - Low carbonization in transportation and green production fields
5. **Jakarta city (Indonesia) – Kawasaki City**
 - Green Building and Green Power Optimization
6. **Semarang city (Indonesia) – Toyama city**
 - Introduction of energy saving equipment in industry sector
7. **Yangon city (Myanmar) – Kawasaki city**
 - Utilization of energy and energy saving in wholesale market
8. **Batam city (Indonesia) – Kawasaki city**
 - Green Building and optimization of renewable energy utilization in Industrial Parks
9. **Ho Chi Minh (Vietnam) – Osaka city**
 - Promoting energy efficiency equipment in water supply system
10. **Bali City (Indonesia) – Toyama city**
 - Support on Tourism Future City
11. **Ayeyarwady Region , Sagaing Region (Myanmar) – Fukushima city**
 - Feasibility of low-carbon industrial area and promotion of activities
12. **Chiangmai Province (Thailand) – Kitakyushu city**
 - Project to accelerate low carbonization in newly industrial estate
13. **Hai Phong city (Vietnam) – Kitakyushu city**
 - Low carbonization project through Eco Park in Vietnam
14. **Mandalay (Myanmar) – Kitakyushu city**
 - To realize low carbonization in Mandalay region in the field of Waste & Energy



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1. Introduction of City of Kitakyushu

1-1. City Located Near to Other Asian Nations, Rich in Nature, and Developed as a Manufacturing Area



■ Kitakyushu City
Population: 977,000 (2010) Area: 487.88 Km²
GDP: 3,430 billion yen (2010)

Kitakyushu City

Rich nature and branded food materials



Karst Plateau Hiraodai



Wakamatsuhoku Beach



Ouma Bamboo Shoots



Kanmon Straits Octopuses



Kokura Beef



Buzen-Sea Oysters



Wakamatsu Special Tomatoes

Major companies in Kitakyushu area



Nippon Steel Corporation



Yaskawa Electric Corporation



TOTO Ltd.



Mitsubishi Chemical Corporation

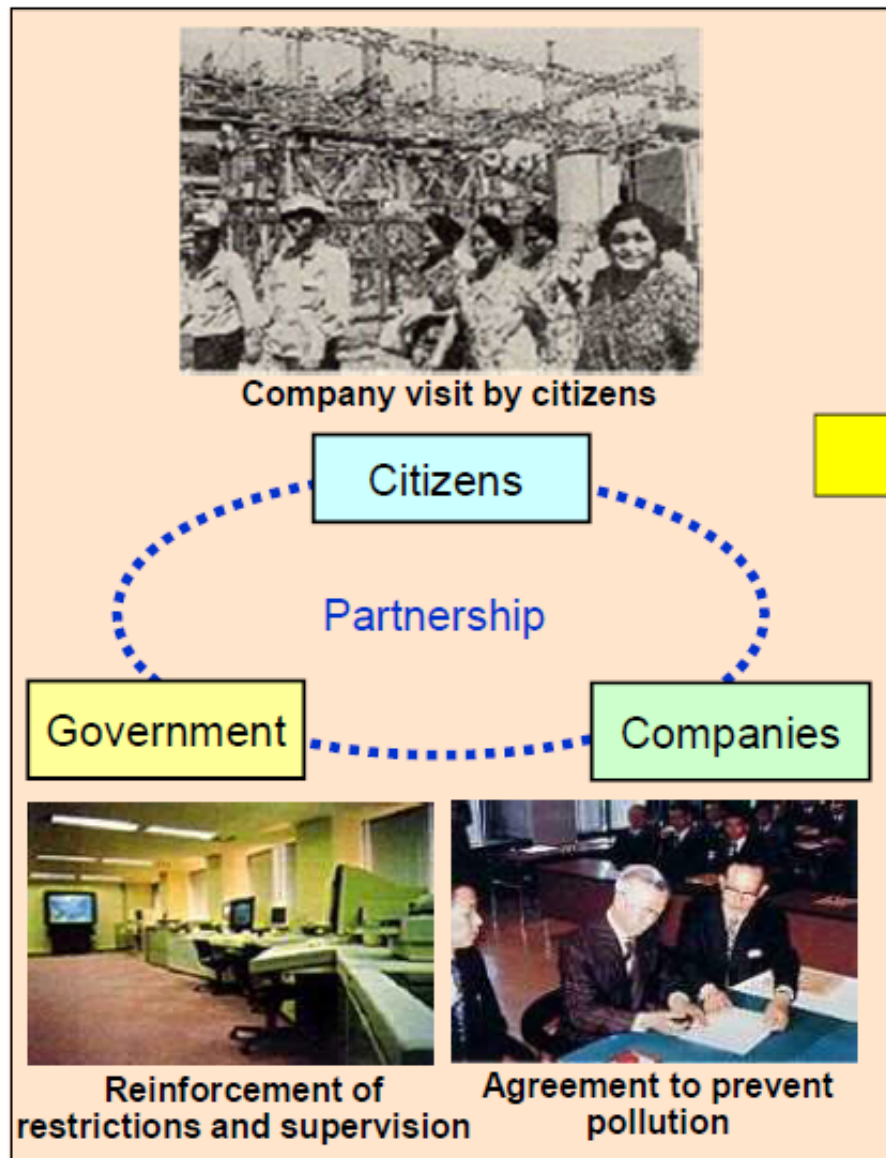


Toyota Motor Corporation
Nissan Motor Co., Ltd.



Mitsubishi Materials Corporation

1-2. Experience with Overcoming Pollution Problems, International Environmental Cooperation



Kitakyushu City with recovered environments

1960s



Present



Solution of pollution problems is a starting point for international cooperation on environmental issues.

Transferring the experience of overcoming pollution problems so that developing nations need not repeat the same mistake !!

Starting International Environment Cooperation from 1980

Received trainees: 8,671 persons from 161 nations
Dispatched specialists: 199 persons to 25 nations

1-3. Leading Projects on Sound Material-Cycle Society, Low Carbon Society and Natural Symbiosis Society

Kitakyushu Eco-Town



Automobile recycling



Home appliance recycling



PET bottle recycling



PCB treatment facility

Water Plaza Kitakyushu

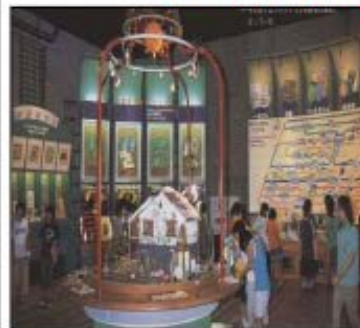


Sewage water membrane treatment system



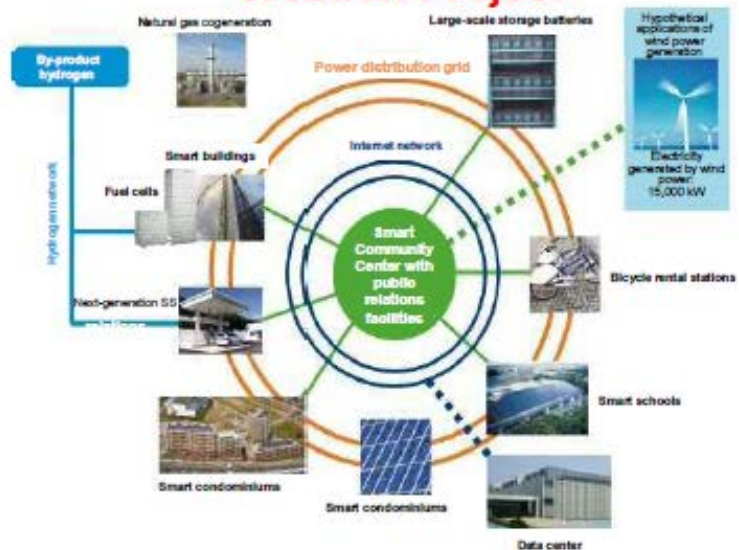
Seawater desalination system

Environment Museum



Activities of environmental supporters

Kitakyushu Smart Community Creation Project



1-4. Kitakyushu Asian Center for Low Carbon Society

Kitakyushu City was selected as Eco-Model City in 2008

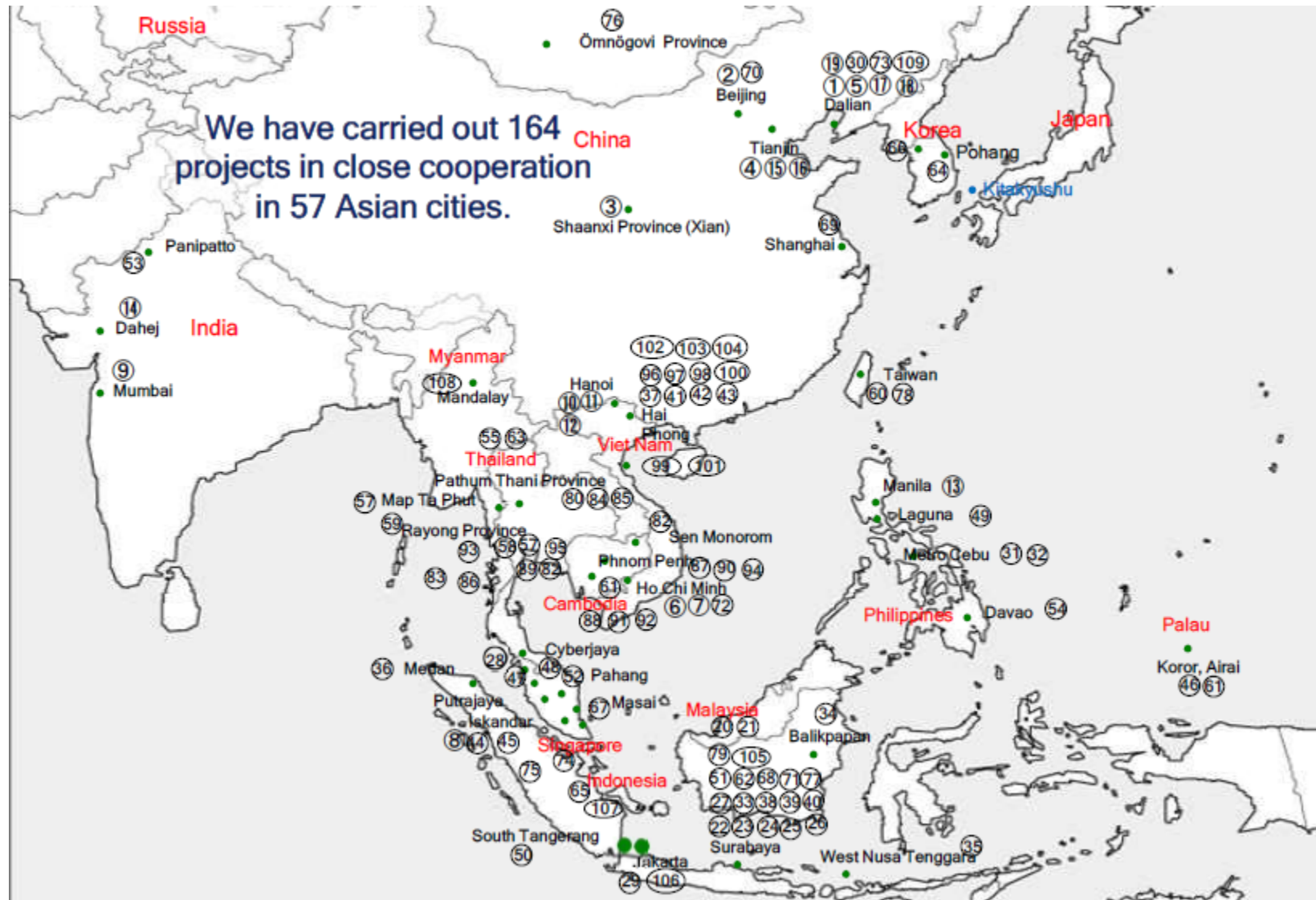
*CO2 reduction: -200%(50% in domestic, 150% in overseas) by 2050
based on CO2 emission in 2005*

**Kitakyushu Asian Center for Low Carbon Society
opened in June 2010“**



**“Changing the approach from environment cooperation
to environment business!!”**

1-5. Diverse Project Development Map



1-6. SDGs Pilot Model City



SDGs Awards by
Gov. of Japan
(Dec. 2017)



**SDGs Future City
Initiative** by Gov. of
Japan (Jun. 2018)



OECD selecting **SDGs Pilot Model City**
for territorial approach (Apr. 2018)



Voluntary Review for SDGs
in city in cooperation with **IGES**
(July. 2018)

First voluntary Review for SDGs by city based on
UN VNR guideline all over the world

■ **IGES Kitakyushu Urban Centre:**
(Institute for Global Environmental Strategies)



2. Outline of “Project to Accelerate Low Carbonization in Newly Developed Industrial Estate Through Ecological Industrial Town Concept/ Kitakyushu-Chiangmai Province, IEAT and DIW Cooperation Project”

2-1. Outline of City to City Collaboration Project

Vision: Implementation of Eco-Industrial Town

Optimization of energy use, waste management, water management, etc. Symbiosis with local community
Eco-friendly industrial park and surround area through realization of safe and secure environment



Eco-Industrial Town

“Symbiosis with community and factory”



Promote 3R, Public Awareness, Environment Education



Support for Implementation

IEAT

DIW

Chiangmai Province

Cooperative Agreement

City of Kitakyushu

- Concept of Energy Management
- Concept of Waste Management
- Concept of Water Management etc.

Provide Accumulated Know-Hows

Experience in FY2015,2016: “Survey project for Eco-Industrial Town with low carbon emission in Rayong”
FY2017 (Chiangmai Province)

Plan in 2018: Actives for JCM in Energy Sector

Activity 1: Creation of Eco-friendly Transportation System and Central Purchasing of Energy Saving Devices & Sharing of High-efficiency Equipment Project

- Eco friendly transportation system for newly developed industrial estate
- Integrated procurement of saving energy equip. and sharing use of efficient equipments.



Integrated Procurement of saving energy equip.

Activity 2: Creation of Replacement Project from fossil fuels to Biomass emitted from facilities

Replacement Project from fossil fuels to Biomass emitted from facilities

◆Bio-gasification and power generation in paper manufacturing factory in place of heavy oil

◆Usage of biomass in place of coal at the cement factory

◆Biomass usage generated from large hotel, large industrial estate

2-2. Eco Industrial Town Project in Sa Kaeo Industrial Estate

The Eco-Industrial Town Project aims to create an eco-friendly industrial complex in cooperation with industrial estates and local communities.

The City of Kitakyushu have concluded Minutes of Understanding with DIW and IEAT

Eco Industrial Town Project in Sa Kaeo Industrial Estate



Eco friendly industrial estate



Introduction of Co2 zero emission transportation with EV bus and solar power system



Water-saving toilet



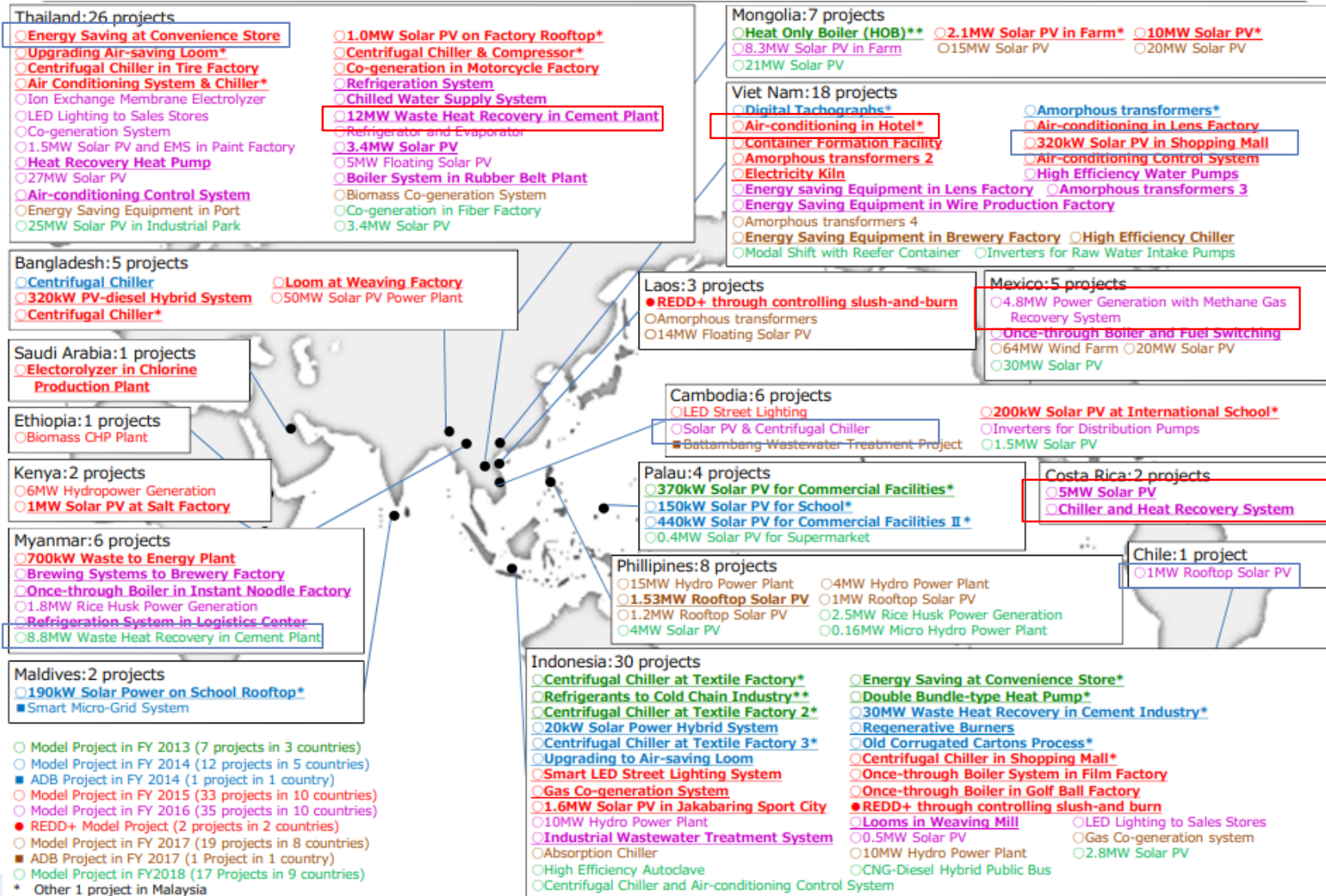
Solar power exterior lighting system



Electric bike sharing system

3. Introduction of Our Company Experiences for JCM Financing Programme

3-1. Our Company Experiences for JCM Financing Programme



Total 127 projects in 17 partner countries

Underlined projects have started operation (73 projects, including 1 partially started projects)
Projects with * have been registered as JCM projects (27 projects)

As Representative
Company

As Consulting
Company

3-2. JCM Projects ①Waste Heat Recovery Power Generation

Introduction of 12MW Power Generation System by Waste Heat Recovery for Cement Plant

Representative Participant

NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc.

Partner Participant: Siam City Power Company Limited

| | |
|--------------|-------------------|
| Host Country | Thailand |
| Year | 2016 |
| Type | JCM Model Project |
| Sector | Renewable Energy |

Outline of GHG Mitigation Activity

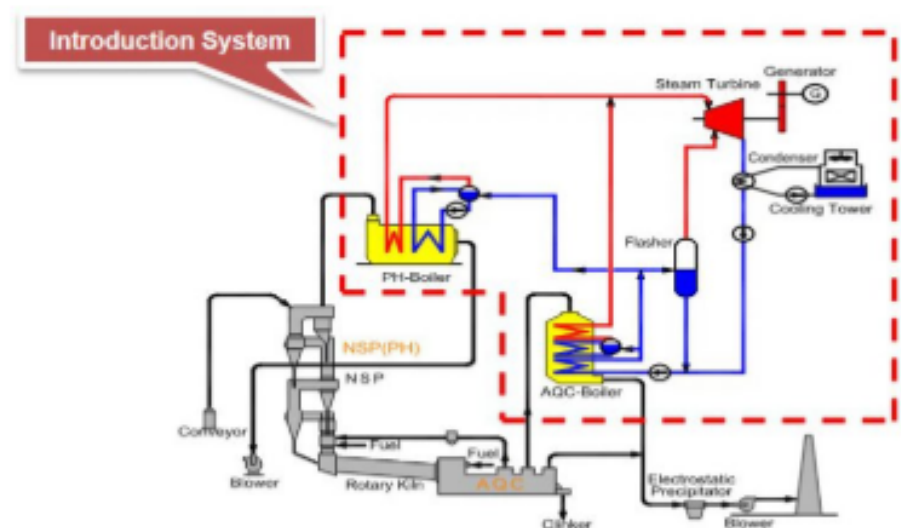
This project is planned to introduce a waste heat recovery (WHR) boiler steam turbine generator system to produce power at cement production plant located in Saraburi Province, Thailand. The generated electricity is used in the cement plant.

WHR system contributes to the reduction of GHG emission to substitute the electricity from the power grid.

Expected GHG Emission Reductions

31,180tCO₂/year

http://gec.jp/jcm/projects/16pro_tha_04/



3-3. JCM Projects ②MW-class Solar Power Project

5MW Solar Power Project in Belen

Representative Participant

NTT Data Institute of Management Consulting, Inc.

Partner Participant: Generacion Solar Fotovoltaica Belen Sociedad Anonima
Coope guanacaste RL.,

| | |
|--------------|-------------------|
| Host Country | Costa Rica |
| Year | 2016 |
| Type | JCM Model Project |
| Sector | Renewable Energy |

Outline of GHG Mitigation Activity

This project is to introduce a large-scale solar power plant in Belen, Guanacaste province, Costa Rica.

The solar power plant enables to supply electricity to the customers of Coope Guanacaste, a power company in Guanacaste.

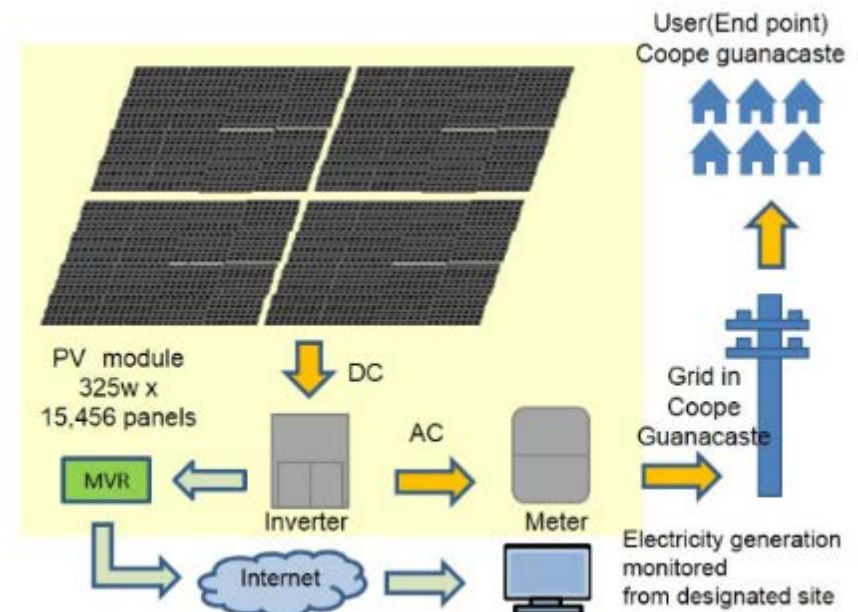
Solar panels to be installed are manufactured by Panasonic Corporation, providing top-level performance in the industry: 19.7% nominal conversion efficiency with a output of 325 watts per panel. This 5MW-scale power plant uses 15,000 PV panels installed in the precinct of Coope Guanacaste.

It enables Coope Guanacaste to diversify the sources of the energy supply by introducing renewable energy, complement the water-power generation in dry season, and contribute to GHG emission reductions.

Expected GHG Emission Reductions

CO2 Emission reductions = 2,401 tCO2/year

http://gec.jp/jcm/projects/16pro_crc_01/



3-4. JCM Projects ③Methane Gas Recovery System

Introduction of 4.8MW Power Generation with Methane Gas Recovery System

Representative Participant

NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc.

Partner Participant: MGM Metano Mexicano, S. de R.L. de C.V.
Energreen Holdings, S.A.P.I. de C.V.

| | |
|--------------|--|
| Host Country | Mexico |
| Year | 2016 |
| Type | JCM Model Project |
| Sector | Waste Management /Biomass Utilisation |

Outline of GHG Mitigation Activity

This project is power generation by gas engine using collected methane gas from landfill at three landfill sites in Mexico.

The methane gas recovery system consists of recovery wells, pipelines, gas filters, gas engine generator and transformer. Captured methane gas is transported to the gas engine power generation facilities through pipelines and filters.

Electricity generated from the gas engine generator will be sold under long-term PPAs with local municipality.

GHG emission reductions are achieved by replacement of grid electricity and avoidance of methane emission from landfill sites.

Expected GHG Emission Reductions

244,629 [tCO2/year]

http://gec.jp/jcm/projects/16pro_mex_01/



3-5. JCM Projects ④High Efficiency Air Conditioning System

Introduction of High Efficiency Air-conditioning in Hotel

Representative Participant

NTT Data Institute of Management Consulting Inc.

Partner Participant:Peace Real Estate Investment Company Limited

| | |
|--------------|-------------------------------|
| Host Country | Vietnam |
| Year | 2015 |
| Type | JCM Model Project |
| Sector | Energy Efficiency Improvement |

Outline of GHG Mitigation Activity

While non-inverter air conditioner with poor energy efficiency is popular in hotels in Vietnam, this project is intended to achieve the energy saving as a whole with the introduction of high efficiency air-conditioning system, which is introduced to the new Novotel Suites in Hanoi (total floor area of about 29,000m², 17 floors above ground, two floors underground, 200 rooms), and achieves GHG emission reductions from reducing power consumption with introduction of high efficiency air-conditioning.

(Equipment performance : COP 4.53, 73.0kW x 1set, COP4.09, 90kW x 12set, COP4.05, 95.0kW x 2set, COP3.29, 109kW x 1set, COP3.27, 125kW x 1set)

Expected GHG Emission Reductions

826 tCO₂/ year

http://gec.jp/jcm/projects/15pro_vie_01/

