



Financing Programme for JCM Model Projects and JCM Global Match

1 March, 2023

Global Environment Centre Foundation

JCM THE JOINT CREDITING
MECHANISM 2022-2023

Outline and History of Global Environment Centre Foundation (GEC)

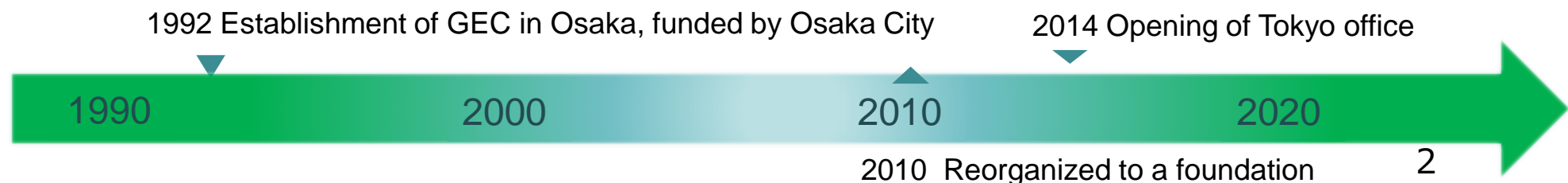
● GEC's Mission

GEC's mission is to contribute to conservation of the environment in developing nations and the world by leveraging Japan's knowledge and experience and to promote international cooperation.

● HISTORY OF GEC

In 1992 GEC was founded by prefectural and city governments of **Osaka** to support United Nations Environment Programme (**UNEP**) International Environmental Technology Centre (IETC), whose mandate is the adoption, application and operation of Environmentally Sound Technologies in developing countries. IETC commenced its operations in 1994.

In 2014, GEC opened its Tokyo office and since then GEC has been acting **as a secretariat of JCM (Joint Crediting Mechanism)**.



What is JCM ?



J

Joint

▷ Implemented by **joint agreement** between Japan and each partner country



C

Crediting

▷ Sharing **carbon credit** between the two countries



M

Mechanism

▷ Under a solid and proven **mechanism**

Joint Crediting Mechanism (JCM) is articulated under Article 6 of the Paris Agreement (COP 21, 2015).

Basic Concept of the JCM

1. Advanced Decarbonizing Technologies (from any country)

Facilitating diffusion of advanced decarbonizing technologies, products, systems, services and infrastructure as well as implementing mitigation actions, and contributing to the sustainable development of developing countries

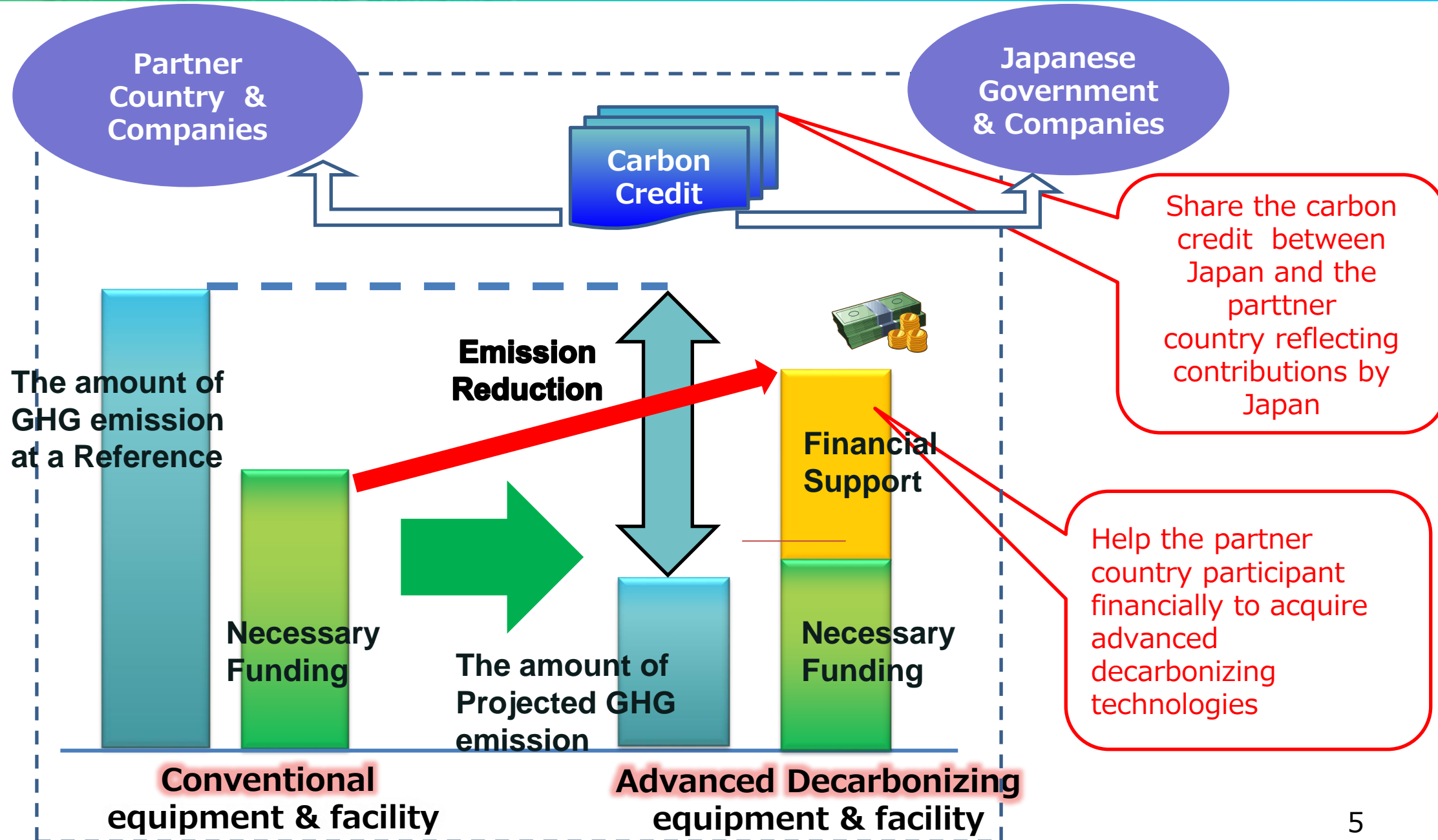
2. Carbon Credits for Partner Country and Japan

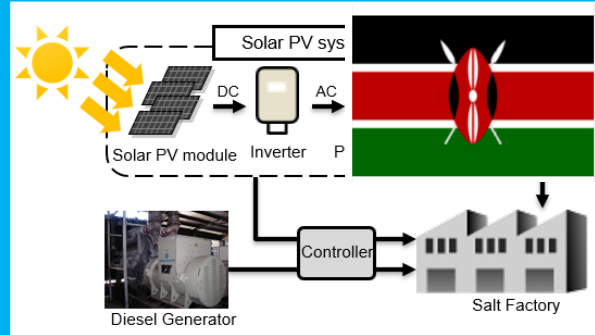
Appropriately evaluating contributions from Japan to GHG emission reductions and removals in a quantitative manner and using them to achieve Japan and partner country's NDC emission reduction targets

3. Global Actions

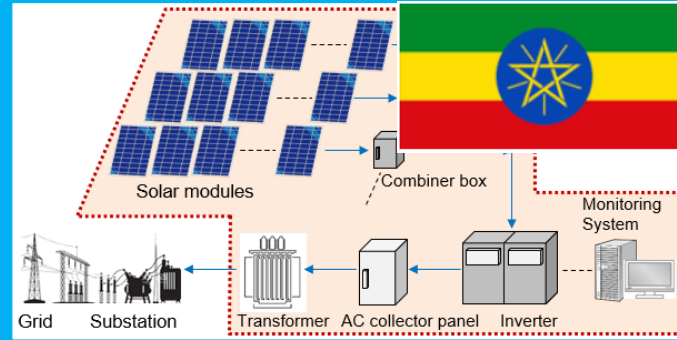
Contributing to the ultimate objective of the UNFCCC by facilitating global actions for GHG emission reductions and removals

The Advantages of JCM

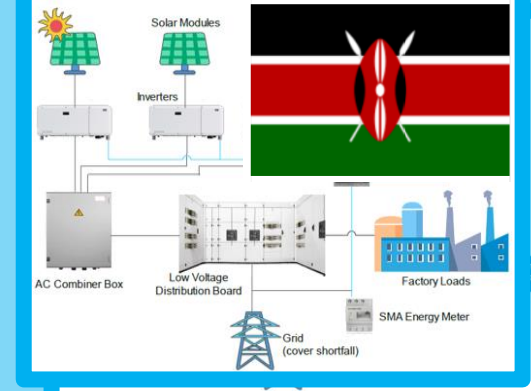




Introduction of Solar PV System at Salt Factory in Kenya, 2015



120MW Solar Power Project in Metehara, Oromia Region in Ethiopia, 2019



Introduction of Rooftop Solar Power System to Facilities in Kenya, 2022

2013

2014

2015

2016

2017

2018

2019

2020

2021

2022



Ethiopia
May 27, 2013
(Addis Ababa)

Kenya
Jun. 12, 2013
(Nairobi)



Senegal
Aug. 25, 2022
(Dakar)

Tunisia
Aug. 26, 2022
(Tunis)

Where JCM can be awarded?

The 25 Partner Countries of JCM programme including **4 Countries** in Africa.



Project proposals of non-partner countries in the Indo-Pacific and **African regions** could be accepted on the premise that a new bilateral agreement could be successfully made.

Total 234 projects (25 partner countries)

(● Model Project: 222 projects (including Eco Lease: 5 projects), ■ ADB: 5 projects, ■ UNIDO: 1 project, ◆ REDD+: 2 projects, ▲ F-gas: 4 projects) Other 1 project in Malaysia
138 underlined projects have been started operation.

68 projects with * have been registered as JCM projects.

Cambodia: 6 projects

- LED Street Lighting*
- 200kW Solar PV at International School*
- Solar PV & Centrifugal Chiller
- Inverters for Distribution Pumps
- Solar PV & Biomass Power Plant
- 0.9MW Solar PV

Myanmar: 8 projects

- 700kW Waste to Energy Plant*
- Brewing Systems to Brewery Factory
- Once-through Boiler in Instant Noodle Factory
- 1.8MW Rice Husk Power Generation
- Refrigeration System in Logistics Center
- 7.3MW Solar PV
- 8.8MW Waste Heat Recovery in Cement Plant
- Brewing Systems and Biogas Boiler to Brewery Factory

Bangladesh: 5 projects

- Centrifugal Chiller
- Loom at Weaving Factory*
- 315kW PV-diesel Hybrid System*
- Centrifugal Chiller*
- High Efficiency Transmission Line

Maldives: 3 projects

- 186kW Solar Power on School Rooftop*
- Smart Micro-Grid System
- Green Male Waste-to-Energy Project

Saudi Arabia: 3 projects

- Electrolyzer in Chlorine Production Plant
- 400MW Solar PV
- 100MW Solar PV

Ethiopia: 1 project

- 120MW Solar PV

Kenya: 5 projects

- 1MW Solar PV at Salt Factory*
- 3.1MW Solar PV
- 2.3MW Solar PV
- 230kW Solar PV and Storage Battery
- 1.5MW Solar PV

Laos: 7 projects

- ◆ REDD+ through controlling slush-and-burn
- Amorphous transformers
- 14MW Floating Solar PV*
- 11MW Solar PV*
- 14MW Solar PV
- 19MW Solar PV
- Amorphous transformers2

Thailand: 51 projects

- Energy Saving at Convenience Store
- Centrifugal Chiller & Compressor*
- Air Conditioning System & Chiller*
- Chilled Water Supply System
- 12MW Waste Heat Recovery in Cement Plant*
- Refrigerator and Evaporator
- 5MW Floating Solar PV*
- Biomass Co-generation System
- 25MW Solar PV in Industrial Park
- ▲ F-gas Recovery and Destruction Scheme
- Heat Exchanger in Fiber Factory
- 5MW Solar PV
- 32MW Solar PV and Floating Solar PV
- 35MW Solar PV and Storage Battery
- 1.3MW Solar PV (Eco Lease)
- ORC Waste Heat Recovery
- Methane Avoidance and Biomass Boiler in Fruit Processing Factory
- 1MW Solar PV on Factory Rooftop*
- Centrifugal Chiller in Tire Factory
- Refrigeration System*
- LED Lighting to Sales Stores
- Heat Recovery Heat Pump*
- Boiler System in Rubber Belt Plant
- Co-generation in Fiber Factory
- 3.4MW Solar PV
- 0.8MW Solar PV and Centrifugal Chiller
- 37MW Solar PV and Melting Furnace
- Centrifugal Chiller to Machinery Factory
- 2.7MW Solar PV with Blockchain Technology
- Once-through Boiler in Garment Factory
- Boiler, Chiller and PV
- Gas Co-generation System & 22MW Solar PV
- 2.9MW Solar PV
- 1MW Solar PV
- 1.6MW Solar PV (Eco Lease)
- Upgrading Air-saving Loom*
- Co-generation in Motorcycle Factory*
- Ion Exchange Membrane Electrolyzer
- 2MW Solar PV1
- 3.4MW Solar PV*
- 30MW Solar PV*
- Air-conditioning Control System
- Biomass Boiler
- 0.8MW Solar PV and Centrifugal Chiller
- 37MW Solar PV and Melting Furnace
- Centrifugal Chiller to Machinery Factory
- 2.7MW Solar PV with Blockchain Technology
- Once-through Boiler in Garment Factory
- Boiler, Chiller and PV
- Gas Co-generation System & 22MW Solar PV
- 2.9MW Solar PV
- 1MW Solar PV
- 1.6MW Solar PV (Eco Lease)

Mongolia: 9 projects

- Heat Only Boiler (HOB)**
- 15MW Solar PV1
- Improving Access to Health Services
- 2.1MW Solar PV in Farm*
- Upscaling Renewable Energy Sector
- 15MW Solar PV2
- 10MW Solar PV*
- Fuel Conversion by Introduction of LPG Boilers
- 8.3MW Solar PV in Farm*

Viet Nam: 45 projects

- Digital Tachographs*
- Air-conditioning in Lens Factory*
- 320kW Solar PV in Shopping Mall*
- Energy saving Equipment in Lens Factory*
- Energy Saving Equipment in Wire Production Factory*
- High Efficiency Chiller
- ▲ F-gas Recovery and Dedicated Destruction Scheme
- Air-Conditioning System and Air Cooled Chillers
- Biomass Boiler
- LED Lighting to Office Building
- 9.8MW Solar PV
- 20MW Biomass Power Plant
- 5.7MW Solar PV
- Amorphous transformers1*
- Container Formation Facility*
- Air-conditioning Control System
- Energy saving Equipment in Wire Production Factory*
- Amorphous transformers 3*
- Amorphous transformers 4
- High Efficiency Chiller
- Modal Shift with Reefer Container
- Inverters for Raw Water Intake Pumps
- Biomass Boiler to Chemical Factory
- 57MW solar PV
- Once-through Boiler to Food Factory
- Air-Conditioning in Hotel1*
- Amorphous transformers 2*
- High Efficiency Water Pumps*
- Amorphous transformers 3*
- Amorphous transformers 4
- Energy Saving Equipment in Brewery Factory
- Inverters for Raw Water Intake Pumps
- 49MW solar PV
- 2MW Solar PV
- Waste to Energy
- 10MW Rice Husk Power Plant
- 12MW Solar PV
- 2.5MW Solar PV
- Chiller and LED
- F-gas Recovery and Mixed Combustion Scheme
- 7.9MW Solar PV
- 0.4MW Solar PV (Eco Lease)
- 48MW Offshore Wind Power
- 1.8MW Solar PV
- 0.8MW Solar PV

Philippines: 17 projects

- 1.53MW Rooftop Solar PV *
- 4MW Solar PV *
- 2MW Solar PV (Eco Lease)
- Biogas Power Generation and Fuel Conversion
- 29MW Binary Geothermal Power Generation
- 20MW Flash Geothermal Power Plant
- ▲ F-gas Recovery and Destruction Scheme
- 14.5MW Mini Hydro Power Plant
- 5.6MW Binary Geothermal Power Generation
- 1MW Rooftop Solar PV
- 18MW Solar PV
- 60MW Solar PV
- Air Conditioning System
- 28MW Binary Geothermal Power Generation
- 9MW Solar PV
- 0.8MW Solar PV (Eco Lease)

Palau: 5 projects

- 370kW Solar PV for Commercial Facilities*
- 155kW Solar PV for School*
- 445kW Solar PV for Commercial Facilities II *
- 0.4MW Solar PV for Supermarket*
- 1MW Solar PV for Supermarket

Indonesia: 49 projects

- Centrifugal Chiller at Textile Factory*
- Refrigerants to Cold Chain Industry**
- Centrifugal Chiller at Textile Factory 2*
- 500kW Solar PV and Storage Battery*
- Centrifugal Chiller at Textile Factory 3*
- Upgrading to Air-saving Loom*
- Smart LED Street Lighting System
- Gas Co-generation System*
- 1.6MW Solar PV in Jakabaring Sport City*
- 10MW Hydro Power Plant1
- Industrial Wastewater Treatment System
- Absorption Chiller*
- Rehabilitation of Hydro Power Plant
- 2MW Mini Hydro Power Plant
- 6MW Hydro Power Plant1
- 8MW Mini Hydro Power Plant
- 6MW Hydro Power Plant3
- Once-through Boiler in Chemical Factory
- 3.5MW Hydro Power Plant
- Energy Saving at Convenience Store*
- Double Bundle-type Heat Pump*
- 30MW Waste Heat Recovery in Cement Industry*
- Regenerative Burners*
- Old Corrugated Cartons Process*
- Centrifugal Chiller in Shopping Mall*
- Once-through Boiler System in Film Factory*
- Once-through Boiler in Golf Ball Factory*
- ◆ REDD+ through controlling slush-and burn
- Looms in Weaving Mill*
- LED Lighting to Sales Stores
- 0.5MW Solar PV*
- Gas Co-generation system
- High Efficiency Autoclave1
- CNG-Diesel Hybrid Public Bus
- 12MW Biomass Power Plant
- Boiler to Carton Box Factory
- 10MW Hydro Power Plant2
- 6MW Hydro Power Plant2
- 5MW Hydro Power Plant
- 4.2MW Solar PV
- Thermal Oil Heater System
- 3.3MW Rooftop Solar PV
- High Efficiency Autoclave2
- 2.3MW Hydro Power Plant
- 5MW Solar PV
- 3.1MW Solar PV
- 2.1MW Solar PV

Mexico: 5 projects

- 1.2MW Power Generation with Methane Gas Recovery System
- Once-through Boiler and Fuel Switching
- 20MW Solar PV
- 30MW Solar PV1
- Energy Efficient Distillation System

Chile: 13 projects

- 1MW Rooftop Solar PV*
- 3.4MW Rice Husk Power Generation
- 3MW Solar PV1*
- 34MW Solar PV
- 9MW Solar PV2
- 6MW Solar PV
- 9MW Solar PV2
- 2.0MW Solar PV
- 3MW Solar PV2
- 9MW Solar PV1
- 3MW Solar PV3
- 9MW Solar PV1
- 47MW Solar PV

Costa Rica: 2 projects

- 5MW Solar PV*
- Chiller and Heat Recovery System

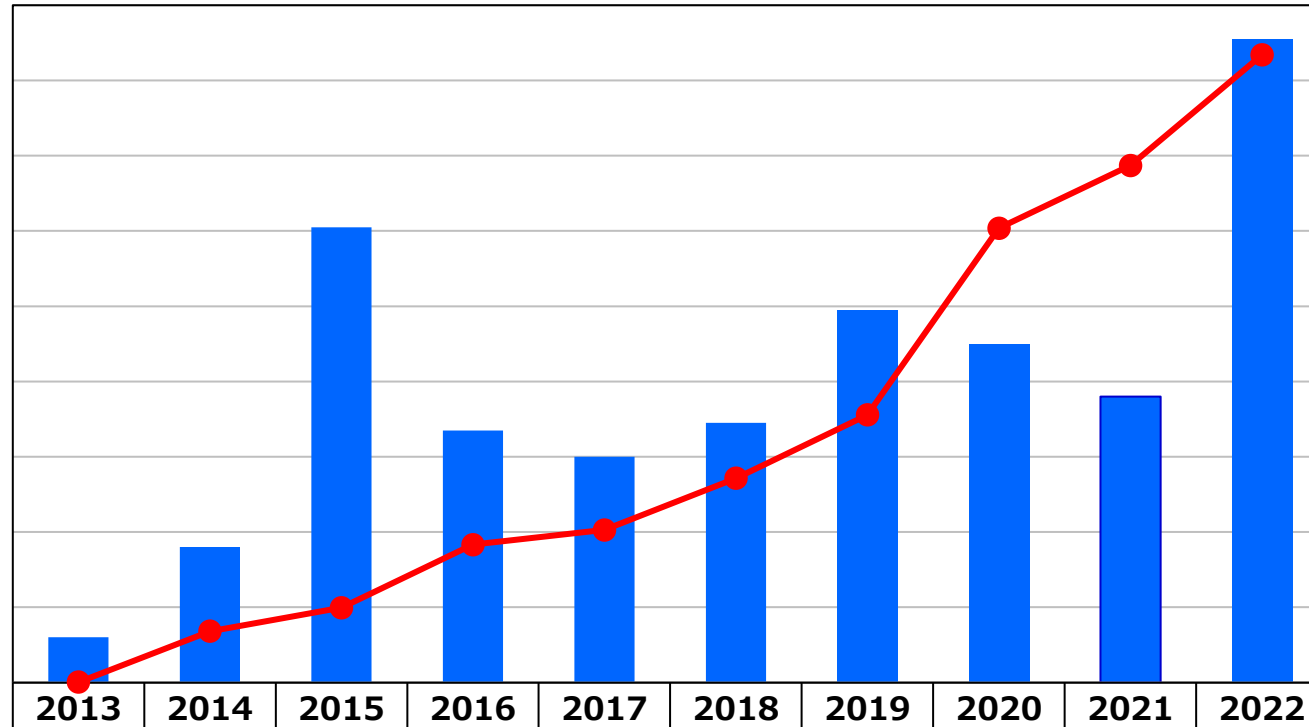


Still too few in Africa. A great opportunity.

Increasing budget and GHG Emission Reduction

Grant budget
by fiscal year
(JPY 100 Mil.)

180
160
140
120
100
80
60
40
20
0



2,000
1,500
1,000
500
0

Sum of Projected
Reductions in
GHG Emissions
by 2030
(10 K CO2 tons)

Grant Budget

Sum of projected
reduction in
GHG emissions

■ 補助金予算額 [億円]	12	36	121	67	60	69	99	90	76	171
● 累計削減量 [万トン]	2	167	243	448	496	664	869	1,475	1,679	2,038

JPY 100 millior

10K CO2 Tons

- During FY 2022, 37 projects have been awarded under JPY 17.1 bil to reduce 560 thousand tons CO2 yearly.
- The JCM model projects awarded by FY 2022 will reduce 20.38 mil tons of CO2 by 2030.

What project you could do in JCM?



Global Environment Centre Foundation

Examples of JCM Model Projects by Technology

Energy Efficiency



Chiller (Thailand)
The Kansai Electric Power Company, Incorporated



Boiler (Viet Nam)
Acecook Co., Ltd.



Amorphous Transformers (Lao PDR) Yuko
Kelso Co., Ltd.



LPG Boilers (Mongolia)
Salsan Co., Ltd.

Energy Efficiency



Raw Water Intake Pumps (Viet Nam)
Yokohama Water Co., Ltd.



Energy Efficient Distillation System (Mexico)
Suntory Spirits Ltd.

Effective Use of Energy



Waste Heat Recovery (Myanmar)
Global Engineering Co., Ltd.



Gas Co-generation System & Chiller (Thailand)
Kansai Electric Power Co., Inc.

Renewable Energy



Binary Geothermal Power Generation (Philippines)
Mitsubishi Heavy Industries, Ltd.



Mini Hydro Power (Indonesia)
Toyo Energy Farm Co., Ltd.



Solar Power (Chile)
Farmland Co., Ltd.



Solar Power (Palau)
Sharp Energy Solutions Corporation

Renewable Energy



Biogas Power & Fuel Conversion (Philippines)
Itochu Corporation

Waste Handling and Disposal



Power Generation with Methane Gas Recovery System (Mexico)
NTT Data Institute of Management Consulting, Inc.



Waste to Energy Plant (Myanmar)
JFE Engineering Corporation

Transportation



CNG-Diesel Hybrid Public Bus (Indonesia)
Hokusan Co., Ltd.

Commitments

JCM Targets by 2030

Reduce **100 million tons of CO2 eq GHG** in total

Japan achieves

Carbon Neutral by 2050

1 Renewable Energy

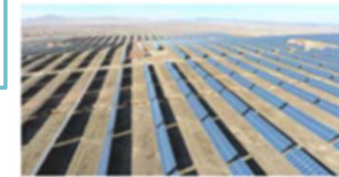
ex. Solar, Wind, Hydro, Geothermal, Biomass, Green Hydrogen

2 Green Logistics including Cold Chain

ex. Non-F-gas cooling system, Modal shift, Airport / Port

3 Waste Handling and Disposal Infrastructure

ex. Waste power generation, Recycling facility, Final disposal site



Solar power



Wind power



High efficiency chiller



Modal shift



Waste to power generation



Improvement of final disposal site

Note: Projects in other fields, such as energy efficiency, CCUS, and F-gas recovery/destruction are also welcome.

The Budget for FY 2022:

JPY 17.1 bill. (US\$ 126 MM @135)
Up from Y 7.6 bill. for FY 2021

Maximum grant per project:

JPY 2 billion (US\$ 14.8 MM @135)

Maximum Support Ratio :

Up to 50%, subject to the table below

Number of previously selected project(s) using a similar technology in each partner country	None (0)	Up to 3 (1-3)	More than 3 (4 and more)
Percentage of financial support	Up to 50%	Up to 40%	Up to 30%

▷ Check the number of the past projects here: *see Annex 2 of p25.

[https://gec.jp/jcm/jp/kobo/r04/mp/\(tentative\)2022_Guidelines_for_Submitting_Proposals.pdf](https://gec.jp/jcm/jp/kobo/r04/mp/(tentative)2022_Guidelines_for_Submitting_Proposals.pdf)

Costs to be supported

Direct Costs to reduce GHG emission reductions. (incl. Main equipment, Engineering and Administrative works.)

Maximum Project Period

3 fiscal years, but could be deferred by one fiscal year. (In some cases, by two years.)



Cost-effectiveness of grant

Cost Effectiveness Criteria applicable for FY 2022

JPY 4,000/tCO₂ eq or lower

JPY 3,000/tCO₂ eq or lower if more than 5 projects in one technology/country

JPY 2,500/tCO₂ eq or lower

for PV except for Thailand

JPY 2,000/tCO₂ eq or lower for PV in Thailand,

JPY 500/tCO₂ eq or lower for Mini Hydro

Projects in any country

Formula of Cost-effectiveness

Amount of financial support[JPY]

= $\frac{\text{Amount of financial support[JPY]}}{\text{Emission reductions of GHG [tCO}_2\text{equivalent/y}] \times \text{legal durable years[y]}}$



Total GHG Emissions
Reduction

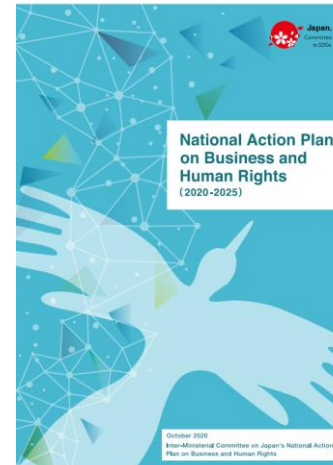


Solid Structure

Address to Human Rights

A very important factor !

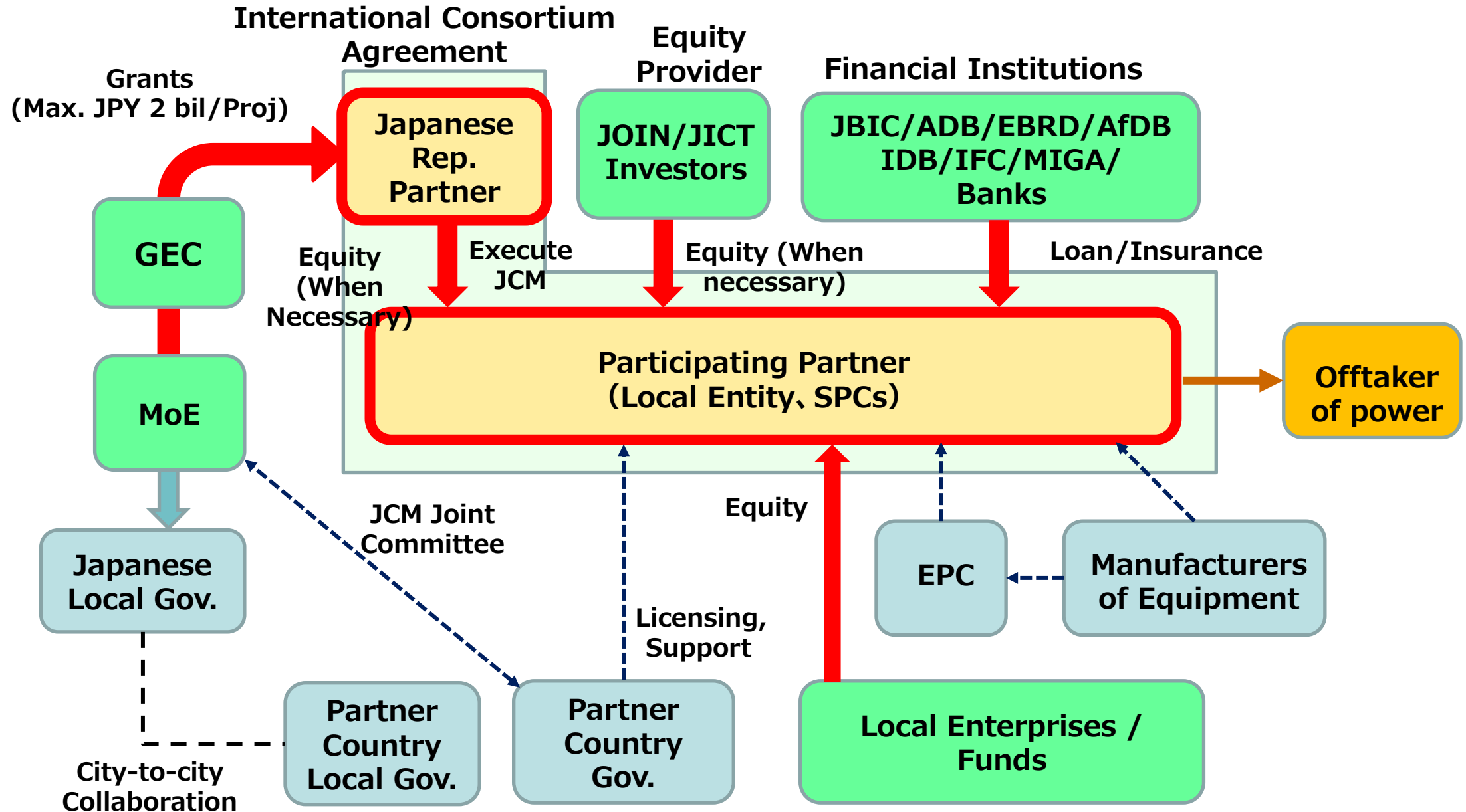
Solid Financing, Solid Team, Sound Structure, and Advanced Technology, to finalize the project and execute MRV (Measurement, Reporting, and Verification) for the legal durable years of the equipment under Japanese Tax Law



Taking the best possible measures to respect human rights (introduction of human rights due diligence process, dialogue with stakeholders, etc.)

[100173319.pdf \(mofa.go.jp\)](https://www.mofa.go.jp/100173319.pdf)

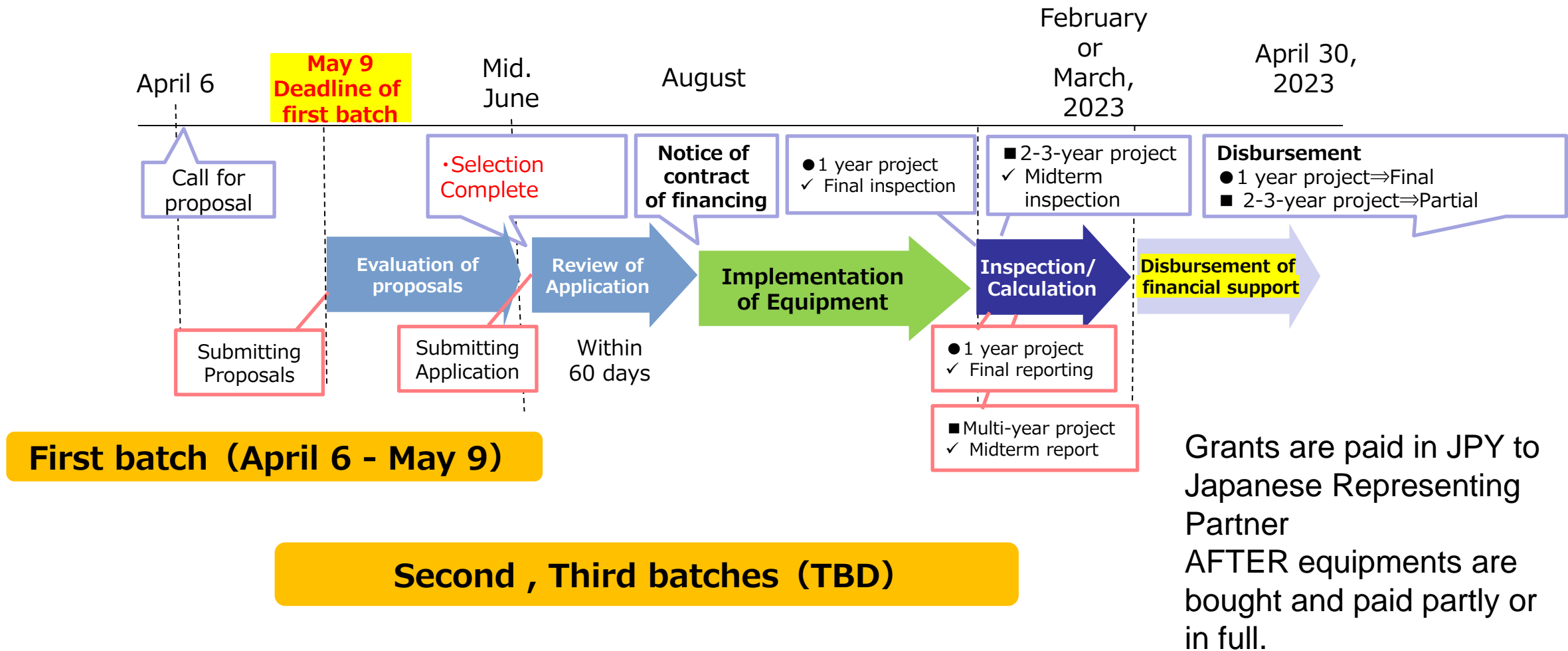
Typical JCM Structure



JCM Model Projects Schedule in 2022



Global Environment Centre Foundation



First batch (April 6 - May 9)

Second , Third batches (TBD)

Schedule may change year by year.
Every Fiscal Year starts in April in Japan.

Accepting proposals by November 30 or when all the budget is awarded, whichever sooner.



JCM Global Match

A FREE matching platform for decarbonizing businesses!



This business matching platform is dedicated to help set up an international consortium for a JCM model project, a scheme to provide financial supports from the government of Japan to accelerate diffusion of advanced decarbonizing technologies. You can **IDENTIFY** for, **DISCUSS** with other users and **ADVERTISE** your business freely in this site.

https://jcm-gm.my.site.com/JCMGlobalMatch/s/?language=en_US

Major 3 features of the “JCM Global Match”

1

IDENTIFY

You can search your potential partner and obtain company lists. Also, you can communicate with other users after their approvals.

2

ADVERTISE

You can appeal your company's products or services in bulletin board

3

DISCUSS

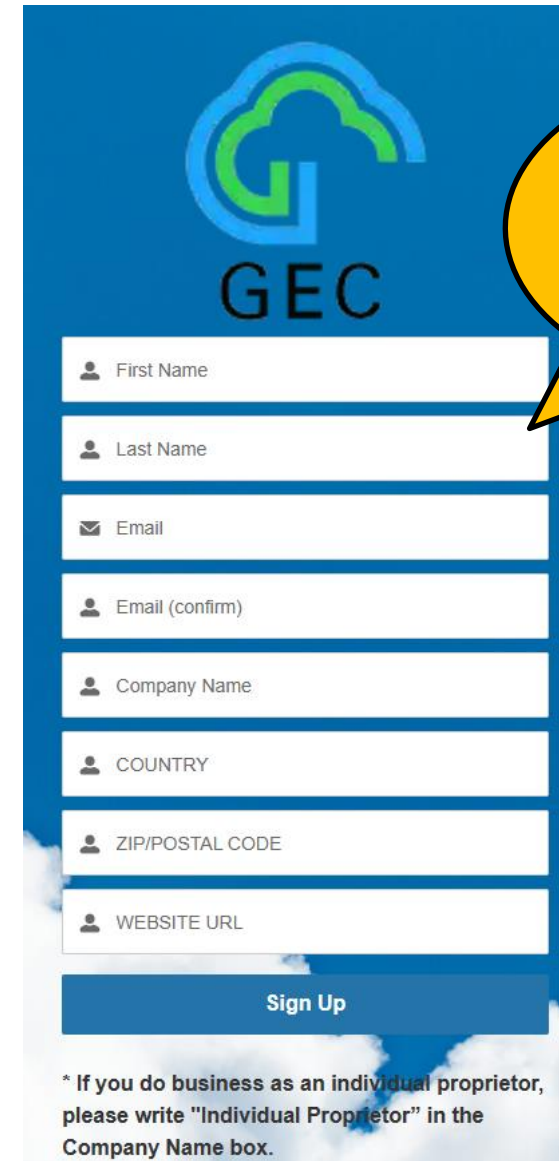
Private chat-room service
“Invitation Salon” is available as well.

It's easy!
Go to the registration page.
Fill in the 8 blanks of the
page shown here in
English.



QR Code to the page
and URL are here!

https://jcm-gm.my.site.com/JCMGlobalMatch/s/login/SelfRegister?language=en_US



The screenshot shows the GEC registration form with the following fields:

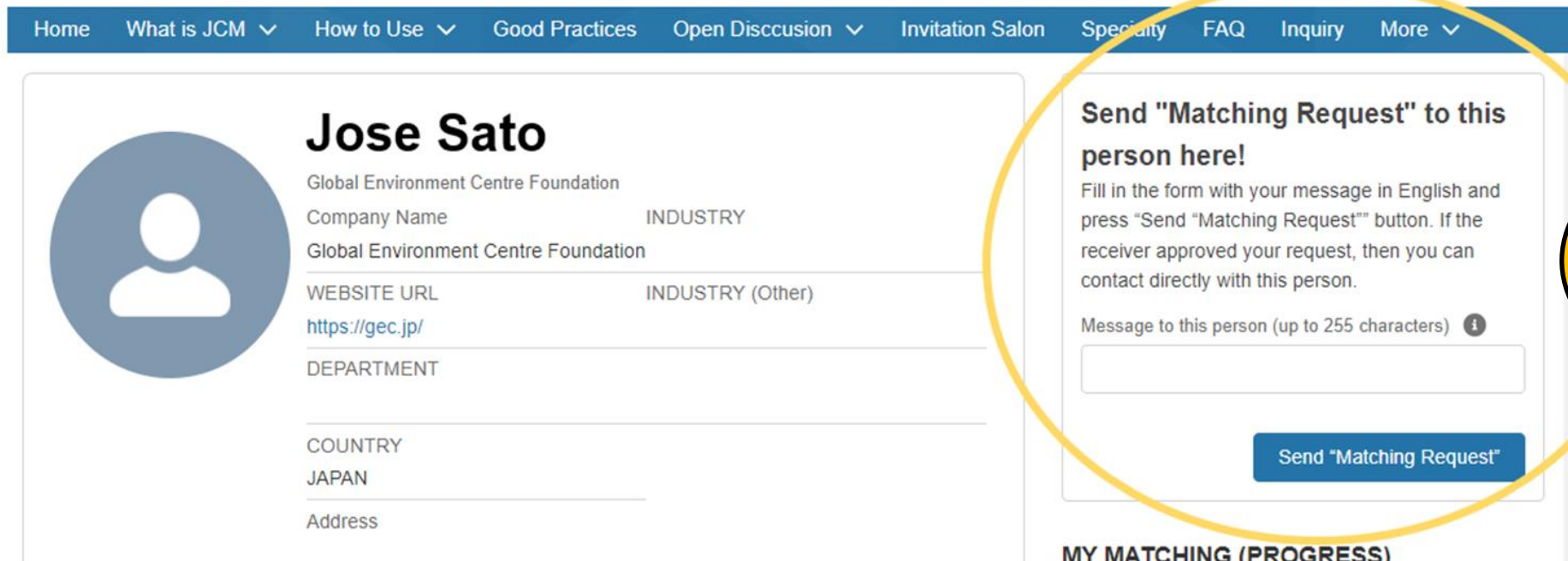
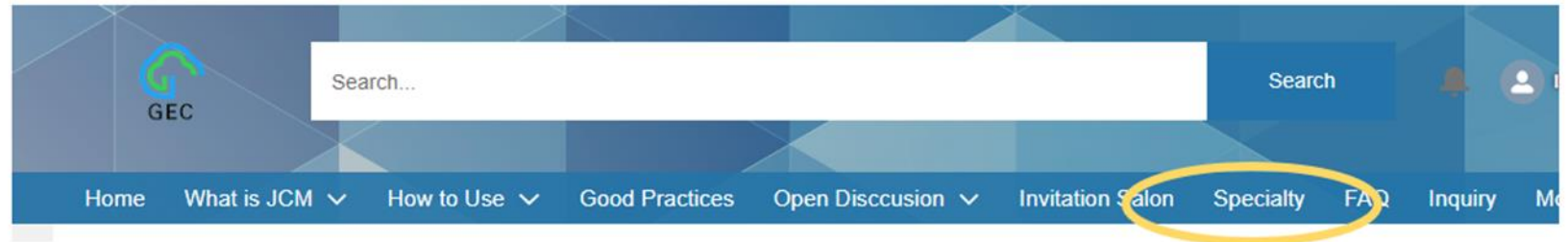
- First Name
- Last Name
- Email
- Email (confirm)
- Company Name
- COUNTRY
- ZIP/POSTAL CODE
- WEBSITE URL

Below the fields is a blue "Sign Up" button. At the bottom, a note states: "* If you do business as an individual proprietor, please write 'Individual Proprietor' in the Company Name box."

It takes only a
few minutes to
complete
registration.

Identify your possible partner and send a Matching Request.

Search Window
at the menu bar.



The screenshot shows the user profile page for Jose Sato. The profile information includes:

- Name:** Jose Sato
- Organization:** Global Environment Centre Foundation
- Company Name:** INDUSTRY
- WEBSITE URL:** <https://gec.jp/>
- DEPARTMENT:** INDUSTRY (Other)
- COUNTRY:** JAPAN
- Address:**

The 'Send Matching Request' section is circled in yellow. It contains the following text:

Send "Matching Request" to this person here!

Fill in the form with your message in English and press "Send Matching Request" button. If the receiver approved your request, then you can contact directly with this person.

Message to this person (up to 255 characters) ⓘ

Send "Matching Request"

MY MATCHING (PROGRESS)

**Click Matching
Request
Button!**

Consult GEC anytime during the year (except for evaluation period.)

Please fill out the Consultation Form which URL is shown here https://gec.jp/jcm/kobo/mp/Consultation_Form_2022en.docx as much as possible and send it to jcm-info@gec.jp for free of charge consultation online or offline. Your email title should be "Consultation on application for JCM Model Project (Your company name)."

GEC will support you by answering to your questions and offer practical advices on points like below:

➤ Sample points of consultation

- ✓ Definition of Eligible Project and advanced technologies
- ✓ International Consortium
- ✓ MRV methodologies to calculate reduction in GHG emission
- ✓ Legal durable years, maximum percentage of financial support, and cost effectiveness
- ✓ Plan to obtain necessary financing, concession, licenses, etc.
- ✓ Reasons financial supports are needed, Profitability

Consultation Form (part)

Global Environment Centre Foundation (GEC) ¹⁾ Consultation Form for JCM Project and Co-innovation Project [FY2022] ⁴⁾	
¹⁾ Please fill out the white space as much as possible. ⁴⁾	
²⁾ Reference material - Guidelines for Submitting Proposals (Tentative translation) for JCM Project ⁴⁾ https://gec.jp/jcm/jp/kobo/r04/mp/(tentative)2022_Guidelines_for_Submitting_Proposals.pdf ⁴⁾	
Information of Consultation ²⁾	
Select for which project you would like to apply. ⁴⁾	<input type="checkbox"/> JCM Model Project ⁴⁾ <input type="checkbox"/> Co-innovation Project ⁴⁾ <input type="checkbox"/> Undecided ⁴⁾
ID No. ⁴⁾	³⁾ For internal use ⁴⁾
Entry Date ⁴⁾	Click here to select a date ⁴⁾
Submission to GEC ⁴⁾	E-mailed on Click here to select a date / Meeting (at) ⁴⁾
Meeting attendee(s) ⁴⁾	⁴⁾ ³⁾ Please list the name(s) and organization(s). ⁴⁾
Past Consultation Date for the same project ⁴⁾	<input type="checkbox"/> First time ⁴⁾ <input type="checkbox"/> () times : Previous Consultation Date : Click here to select a date ⁴⁾
GEC responder ⁴⁾	³⁾ For internal use ⁴⁾
Project Information Provided by ²⁾	
Company name ⁴⁾	⁴⁾
Department/division ⁴⁾	⁴⁾
Your name ⁴⁾	⁴⁾
E-mail address ⁴⁾	⁴⁾
Phone No. ⁴⁾	³⁾ Country code + local number ⁴⁾
Project Information ²⁾	
Application target ⁴⁾	<input type="checkbox"/> FY2022 <input type="checkbox"/> FY2023 <input type="checkbox"/> TBD ⁴⁾ If other than above, please specify: ⁴⁾
Partner country ⁴⁾	⁴⁾ ³⁾ The country where the project will be implemented. ⁴⁾
Name of representative participant ⁴⁾	Name of representative participant(s) ¹⁾ : ⁴⁾ Website: ⁴⁾ ¹⁾ : A representative participant must be a Japanese entity registered in Japan. ⁴⁾ If you haven't decided or been looking for one, please state as such. ⁴⁾
Name of partner participant ⁴⁾	Name of partner participant(s) ¹⁾ : ⁴⁾ Partner participant ²⁾ is a subsidiary of a Japanese company: Click to select ⁴⁾ Website: ⁴⁾ ¹⁾ : Please include an entity that owns and uses the facility introduced by the project. ⁴⁾

- JCM web site : <https://gec.jp/jcm/>
- JCM Twitter by GEC : https://twitter.com/GEC_JCM_Info
- JCM brochure : https://gec.jp/jcm/jp/publication/JCM2022Oct_En_Web.pdf



Please use the following sites to develop business partners.

Project cases :
<https://gec.jp/jcm/projects/>

List of projects
under the JCM Financing
programme by MOEJ :
http://gec.jp/jcm/en/wp-content/uploads/2023/02/2023_0210_list_en.pdf

Project Map
http://gec.jp/jcm/en/wp-content/uploads/2023/02/2023_0210_map_en.pdf

Consultation by GEC

GEC provides application consultation in order to assist project formation for entities interested in JCM Model Project. Please feel free to contact us. Please send an e-mail to jcm-info@gec.jp. Subject of e-mail should be "Consultation on application for JCM Model Project (Your company name)".

Suitable for Getting advice on your proposal at various phases.

◆Contact us:
Takeyama, Fujimoto, Watanabe

Financing Programme Group, Tokyo Office,
Global Environment Centre Foundation (GEC)

jcm-info@gec.jp

◆Visit our Twitter:



@GEC_JCM_Info



FYI

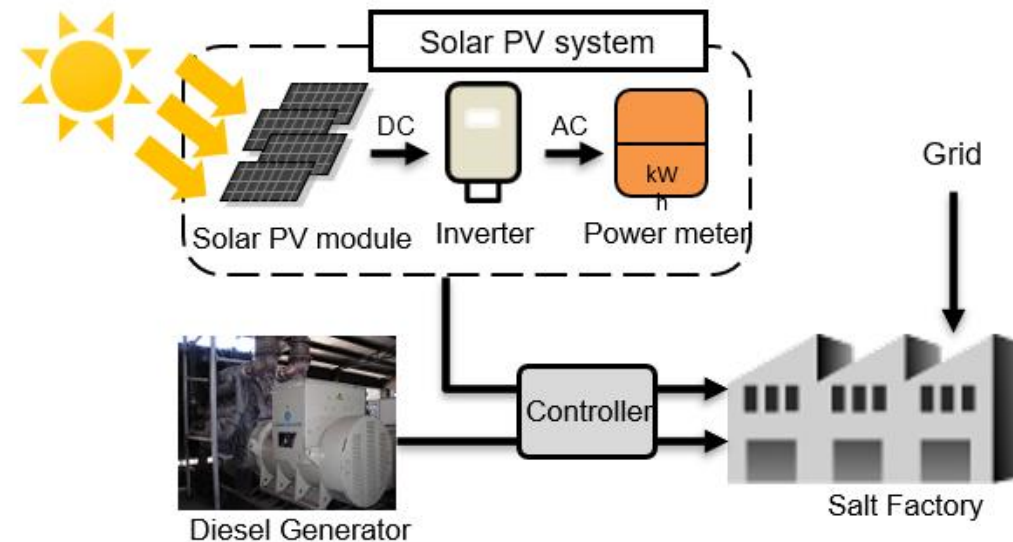
Introduction of Solar PV System at Salt Factory

PP (Japan): Pacific Consultants Co., Ltd., / PP (Kenya): Krystalline Salt Limited (Kaysalt)

Outline of GHG Mitigation Activity

This project aims to reduce CO₂ emissions by introducing a 991kW solar PV system at a salt factory of Krystalline Salt Limited (Kaysalt). All of the generated electricity is used in the factory.

The factory usually uses grid electricity but also uses captive diesel power generation during power outages. Therefore the project introduces a controller device which enables safe operation of the solar PV system together with the diesel generators. The generated electricity will displace electricity use from both grid and diesel generators.



Expected GHG Emission Reductions

630 tCO₂/year

CO₂ emission reduction
= PV generation
× Reference emission factor

Sites of JCM Model Project

The salt factory is located 20km north of Malindi, Kilifi County



Map data c2015 Google

© 2007-2016 d-maps.com
(http://www.d-maps.com/carte.php?num_car=13932&lang=en)

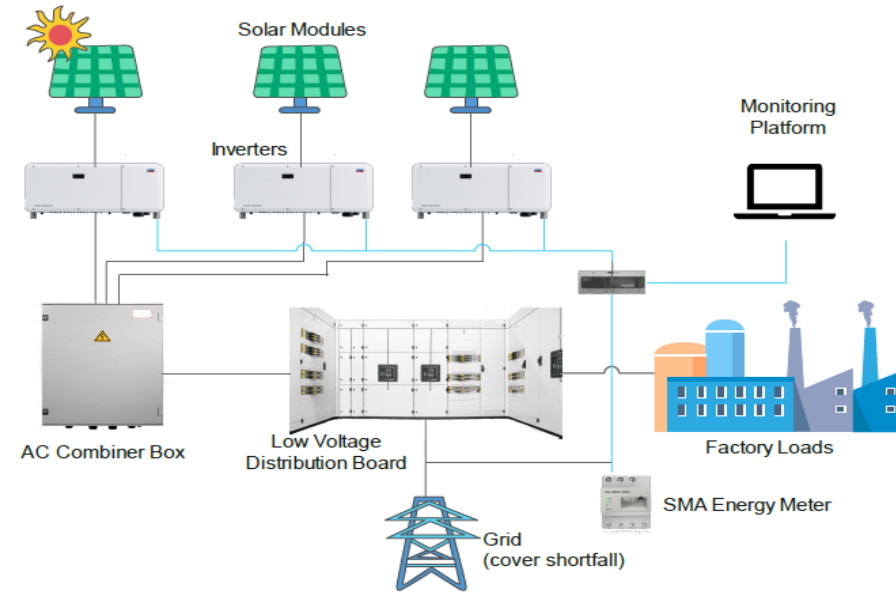
Introduction of 3.1MW Rooftop Solar Power System to Food Processing Facilities

PP (Japan): AAIC Japan Japan Co., Ltd, AAIC Holdings Pte. Ltd.,

(Kenya): Unga Holdings Limited, Unga Limited, Unga Farm Care (E.A.) Limited

Outline of GHG Mitigation Activity

3.1 MW solar power system is installed to reduce greenhouse gas (GHG) emissions by replacing a part of the electricity consumption at 4 grain milling facilities and 3 livestock feed production facilities in Nairobi, Eldoret, and Nakuru counties by the power supplied by the system. This project contributes to the achievement of Kenya's policy for transitioning to 100% clean energy by 2030.



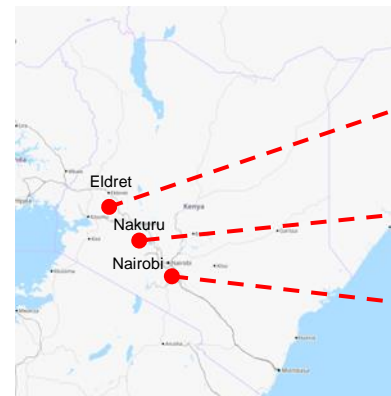
Expected GHG Emission Reductions

2,455 tCO₂ /year

= (Reference CO₂ emissions)
- (Project CO₂ emissions)

- Reference CO₂ emissions
= (Quantity of the electricity generated by the project) [MWh/year]
× Emission factor [tCO₂/MWh]
- Project CO₂ emissions
= 0 [tCO₂/year])

Site of Project



Eldoret Site (2 sites)
Approx. 16km North of Eldoret
International airport

Nakuru Site (2 sites)
Approx. 162 km west of Nairobi City

Nairobi Site (3 site)
Nairobi City

©OpenStreetMap contributors. Tiles courtesy of Andy Allan.

48MW Offshore Wind Power Generation Project in Duyen Hai District, Tra Vinh Province

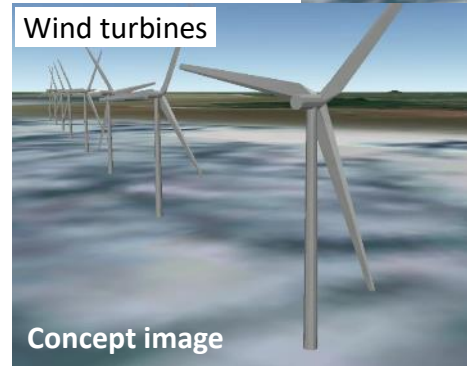
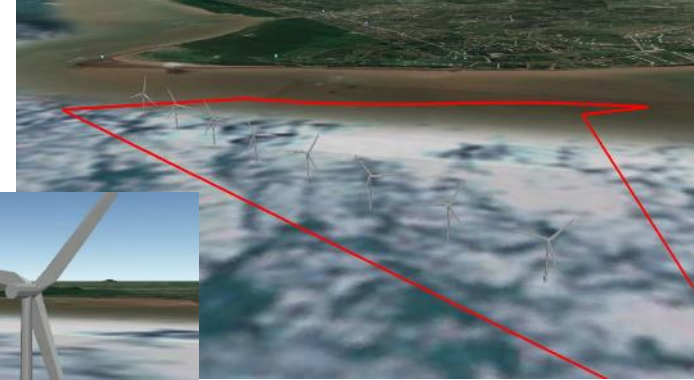
PP (Japan): Shizen Energy Inc. PP, (Vietnam), Duyen Hai Wind Power Company Limited

Outline of GHG Mitigation Activity

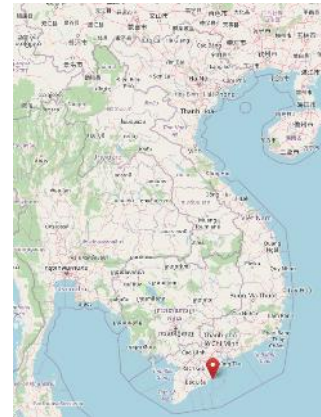
This project installs offshore wind power generation facilities with a capacity of 48 MW 100m to 2km offshore in Duyen Hai District, Tra Vinh Province. The electricity is sold to the Vietnam Electricity to replace fossil fuel originated power in the grid to reduce greenhouse gas (GHG) emissions. This project contributes to Vietnam's nationally determined contribution (NDC) for reducing GHG emissions by 9% compared to BAU.

Wind turbines

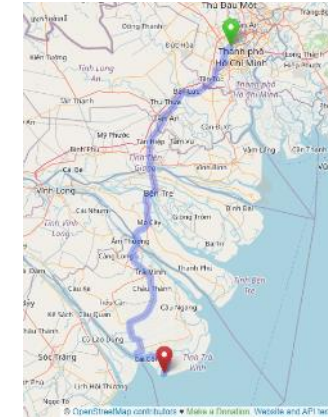
Concept image

**Expected GHG Emission Reductions****36,597 tCO₂ /year**

- = (Reference CO₂ emissions)
 - (Project CO₂ emissions)
- Reference CO₂ emissions
 - = (Quantity of the electricity generated by the project) [MWh/year]
 - × Emission factor [tCO₂/MWh]
- Project CO₂ emissions
 - = 0 [tCO₂/year]

Sites of Project

Tan Son Nhat International Airport



The project site is located approx.200km south of Tan Son Nhat International Airport.

14.5MW Mini Hydro Power Plant Project in Siguil River in Mindanao

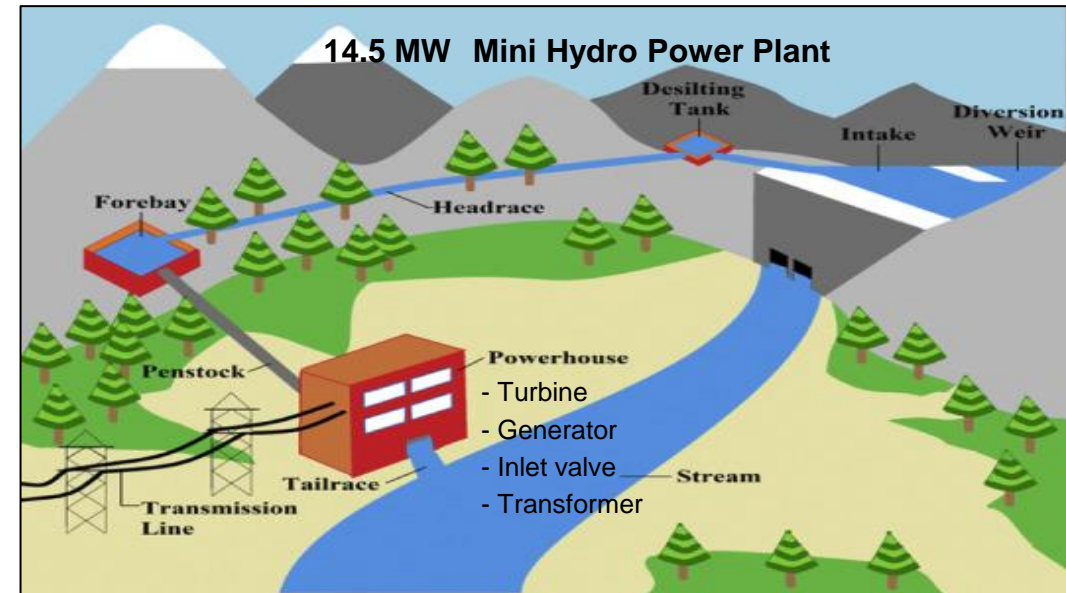
PP (Japan): Toyota Tsusho Corporation, PP (Philippines): Alsons Consolidated Resources, Inc.,

Alsons Renewable Energy Corporation, Siguil Hydro Power Corporation

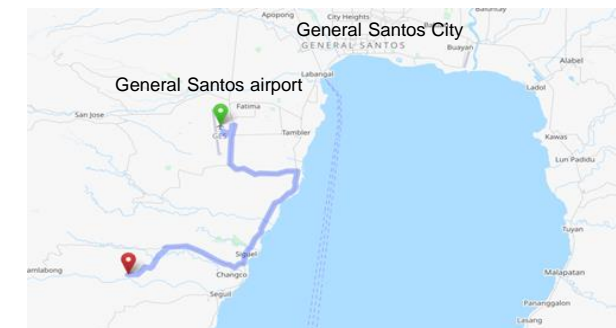
Outline of GHG Mitigation Activity

This project aims to reduce CO₂ emissions by constructing a run-of-river mini hydroelectric power plant 14.5 MW (14.5 X 1 unit) utilizing water resources in municipality of Maasim, southern Mindanao Island.

This project contributes to the reduction of greenhouse gas (GHG) emissions by replacing grid electricity with renewable energy and also contribute to the realization of a sustainable society by addressing the growing demand for electricity necessitated by economy growth.

**Expected GHG Emission Reductions****41,574 tCO₂/year**= (Reference CO₂ emissions)- (Project CO₂ Emission)

- Reference CO₂ emissions
= Quantity of the electricity generated by the project 88,835 [MWh/year]
× Emission Factor 0.468 [tCO₂/MWh]
- Project CO₂ Emissions = 0 tCO₂/year

Sites of Project

Approx. 30km south of
General Santos Airport

©OpenStreetMap contributors. Tiles courtesy of Andy Allan.

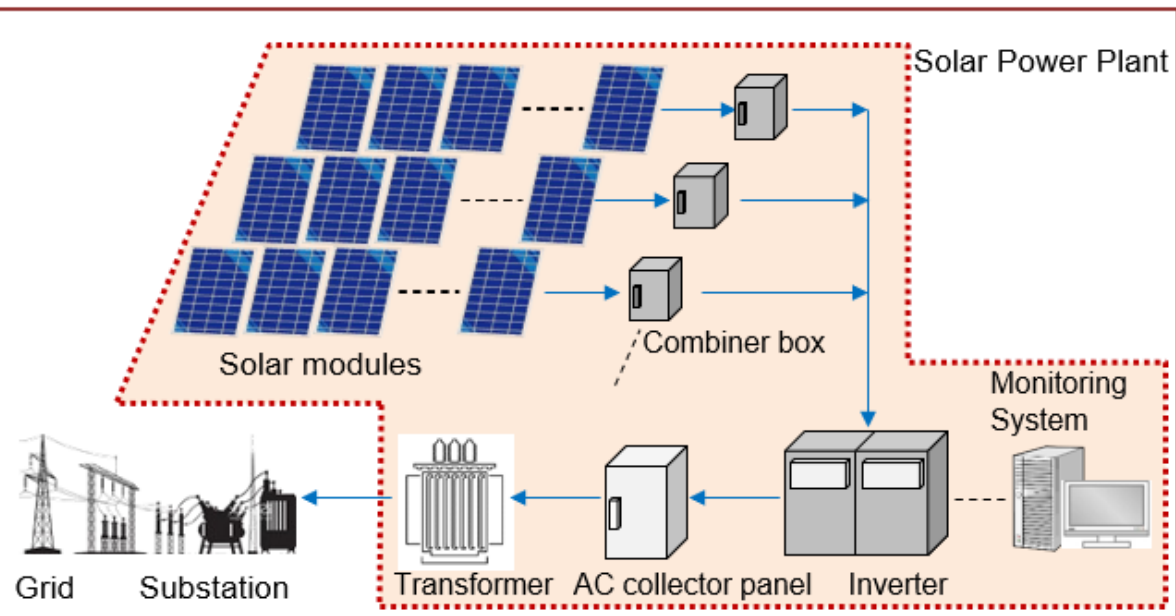
120MW Solar Power Project in Metehara, Oromia Region

PP (Japan): Sharp Energy Solutions Corporation, PP (Ethiopia): Enel Green Power Metehara Solar PLC

Outline of GHG Mitigation Activity

120 MW solar power plant is installed in Metehara, Oromia Region. All net electricity generated by the plant is delivered to the power grid.

This project contributes to the achievement of Ethiopia's electricity master plan for solar installation target of 300MW by 2020.

**Expected GHG Emission Reductions**

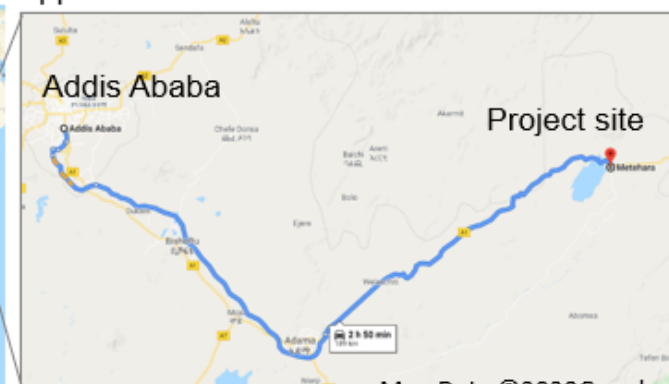
30,007 tCO₂ /year

= (Reference CO₂ emissions)
 - (Project CO₂ emissions)

= ((Quantity of the electricity generated by the project) [MWh/year] - 0 [MWh/year])
 × Emission factor [tCO₂ /MWh]

Sites of Project

Approx. 130km east from Addis Ababa



Map Data ©2020Google

400MW Solar Power Project in Rabigh Region

PP (Japan): Marubeni Corporation PP (Saudi Arabia): Al Jomaih Energy & Water Company, Ltd.
South Rabigh Renewable Energy Company

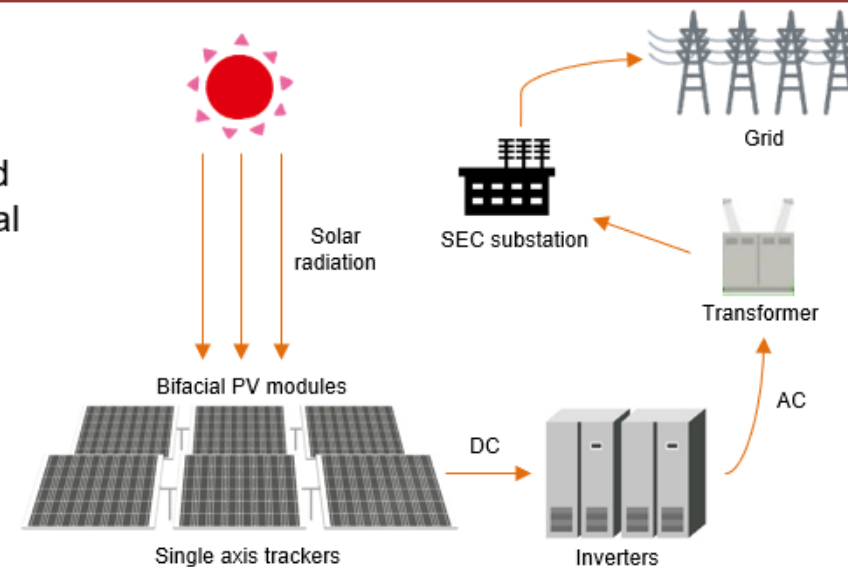
Outline of GHG Mitigation Activity

A 400 MW solar PV plant is constructed in the Rabigh Region.

A new project company is established to build, own and operate the solar PV plant, and sells electricity to a local power company for 25 years from the planned COD.

The plant employs bifacial PV modules and single-axis trackers in order to achieve high efficiency in power generation.

This project supplies renewable energy to the grid electricity and reduces greenhouse gas (GHG) emissions in Saudi Arabia.

**Expected GHG Emission Reductions****475,393tCO₂/year**

= (Reference CO₂ emissions) [tCO₂/year]
- (Project CO₂ emissions) [tCO₂/year]

- Reference CO₂ emissions
= Quantity of the electricity generated by the project [MWh/year]
x Emission factor [tCO₂/MWh]
- Project CO₂ emissions
= 0 [tCO₂/year]

Sites of Project

The site is located in the Makkah region, approx. 119 km north of King Abdulaziz International Airport.



Data map ©2020 Google

Tanawon 20MW Flash Geothermal Power Plant Project

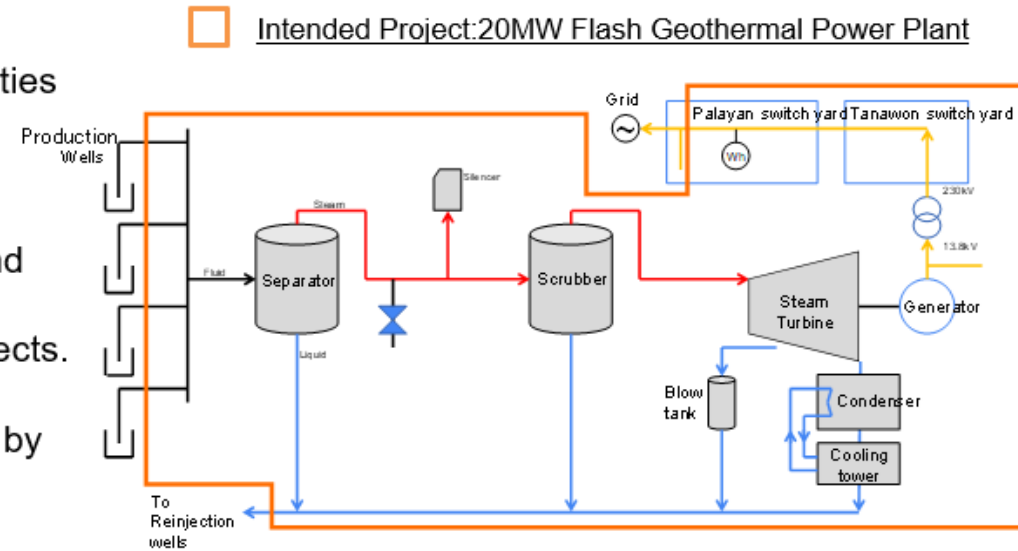
PP (Japan): Mizuho-Toshiba Leasing Company, Limited, PP (Philippines): Bac-Man Geothermal Inc.

Outline of GHG Mitigation Activity

This project introduces a new 20 MW Flash Geothermal power plant system and new facilities for connection to the grid at Tanawon area of southern part of the Luzon island.

This Flash Geothermal power plant is small and easy to install, making it suitable for relatively small-scale geothermal power generation projects.

This project replaces the grid power produced by fossil fuel with renewable energy and reduces greenhouse gas (GHG) emissions.

**Expected GHG Emission Reductions**

38,312tCO₂/year

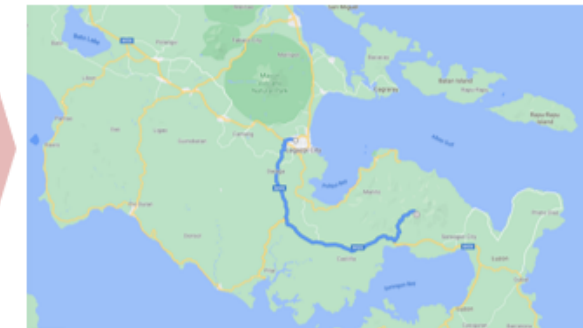
= (Reference CO₂ emissions)
- (Project CO₂ emissions)

• Reference CO₂ emissions
= Quantity of the electricity
transmission by the project [MWh/year]
× Emission factor [tCO₂/MWh]

• Project CO₂ emissions
= Quantity of GHG (CO₂, CH₄) in Non
Condensable Gas of Steam from the well.

Sites of Project

54km Southeast of the Legazpi City
Domestic Airport



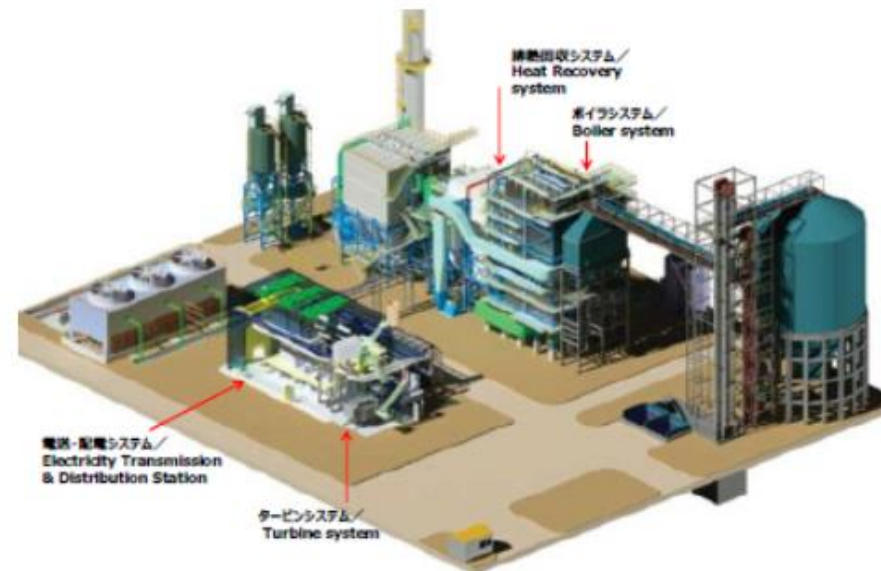
Map data ©2021 Google

Introduction of Biomass Co-generation system to Food Factory

PP (Japan): DAIICHI JITSUGYO CO., LTD. PP (Vietnam): THUAN HAI CORPORATION

Outline of GHG Mitigation Activity

This project introduces a co-generation facility, which uses biomass (rice husks) as fuel to supply steam and electric power, at a food factory in Bien Hoa City. By introducing a biomass steam boiler and a steam turbine, a part of electric power currently purchased from the grid is replaced and greenhouse gas (GHG) emissions are reduced.



Expected GHG Emission Reductions

24,115tCO₂/年

= Reference CO₂ emission – Project CO₂ emission

- Reference CO₂ Emission
= Net avoided Steam [MJ/y]
x Emission Factor [tCO₂/MJ]

- Project CO₂ emission
= 0 tCO₂/y

Sites of Project

Approx. 35Km Northeast of Tan Son Nhat International Airport



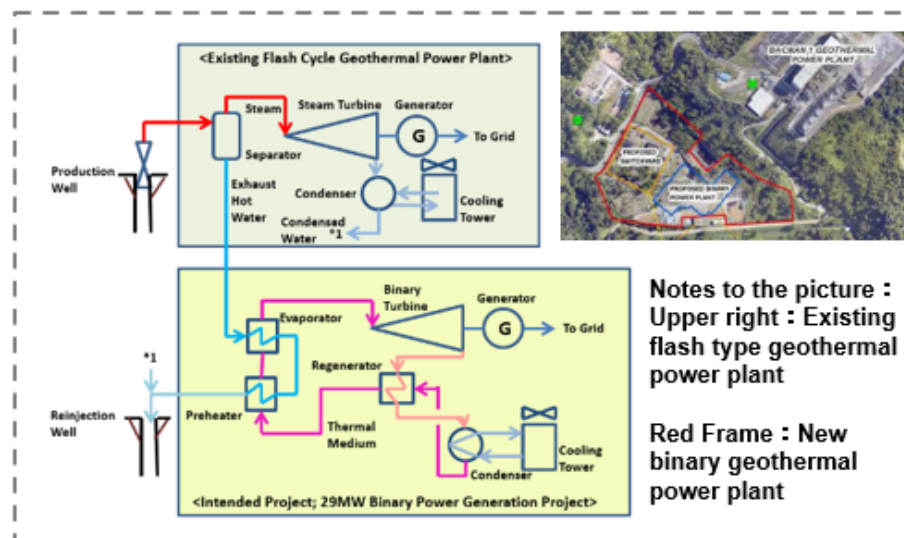
Map data©2020 Google

29MW Binary Power Generation Project at Palayan Geothermal Power Plant

PP (Japan): Mitsubishi Heavy Industries, Ltd. PP (Philippines): Bac Man Geothermal Inc.

Outline of GHG Mitigation Activity

This project introduces a new 29 MW binary geothermal power plant with the Organic Rankine Cycle (ORC) system to the existing 120MW flash type geothermal power plant owned and operated by Bac-Man Geothermal Inc. The power plant is located at Palayan area of southern part of the Luzon island. This binary geothermal power plant effectively utilizes exhaust hot water of low enthalpy from the existing flash geothermal power plant without producing hazardous gasses. This project replaces the grid power produced by fossil fuel with renewable energy and reduces greenhouse gas (GHG) emissions.



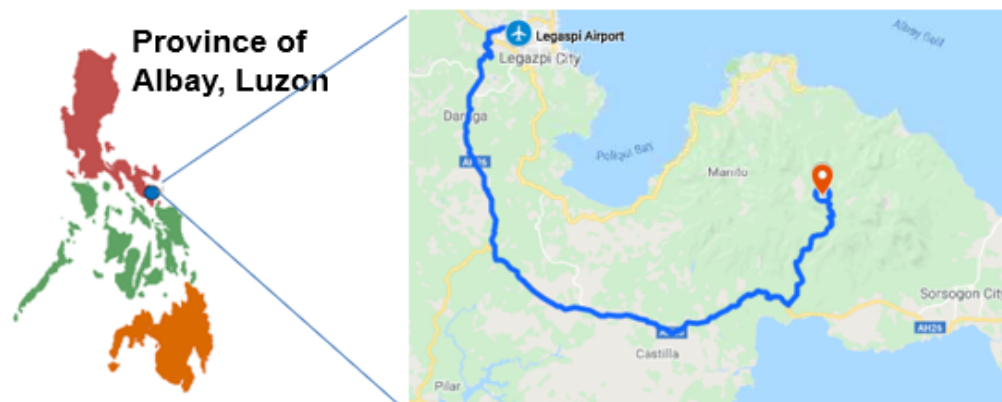
Expected GHG Emission Reductions

72,200 tCO₂/Year

= (Reference CO₂ emissions)
- (Project CO₂ emissions)

- Reference CO₂ emissions
= (Quantity of the electricity generated by the project) [MWh/year]
× Emission factor [tCO₂/MWh]
- Project CO₂ emissions
= 0 [tCO₂/year])

Sites of Project



56km Southwest of the Legazpi City Airport

Map data©2020Google