

Recent Development of The Joint Crediting Mechanism (JCM)

April 2019

Ministry of the Environment, Japan

The Joint Crediting Mechanism

- Facilitating diffusion of leading low carbon technologies through contributions from Japan and evaluating realized GHG emission reductions or removals in a quantitative manner to use them for achieving Japan's emission reduction target.
- Japan will address the high initial cost barrier of introducing advanced low-carbon technologies in the Partner countries (17 countries) through the JCM (GoJ implements several supporting schemes)



Waste heat recovery in Cement Industry, JFE engineering, Indonesia



Eco-driving with Digital Tachographs, NITTSU, Vietnam



Energy saving at convenience stores, Panasonic, Indonesia



High efficiency air-conditioning and process cooling, Ebara refrigeration equipment & systems, Indonesia



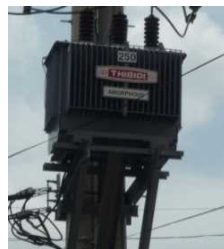
High-efficiency Heat only Boilers, Suuri-Keikaku, Mongolia



Upgrading air-saving loom at textile factory, TORAY etc., Indonesia, Thai, Bangladesh



Installing solar PV system, PCKK, Palau Maldives



Amorphous transformers in power distribution, Hitachi Materials, Vietnam



Co-generation system at factory, Toyota, Nippon Steel & Sumikin Engineering, Indonesia, Thai



High efficiency air-conditioning system, Hitachi, Daikin, Vietnam



Solar PV System at Salt Factory, PCKK, Kenya



Waste to Energy Plant, JFE engineering, Myanmar



High efficient refrigerator, Mayekawa MFG, Indonesia

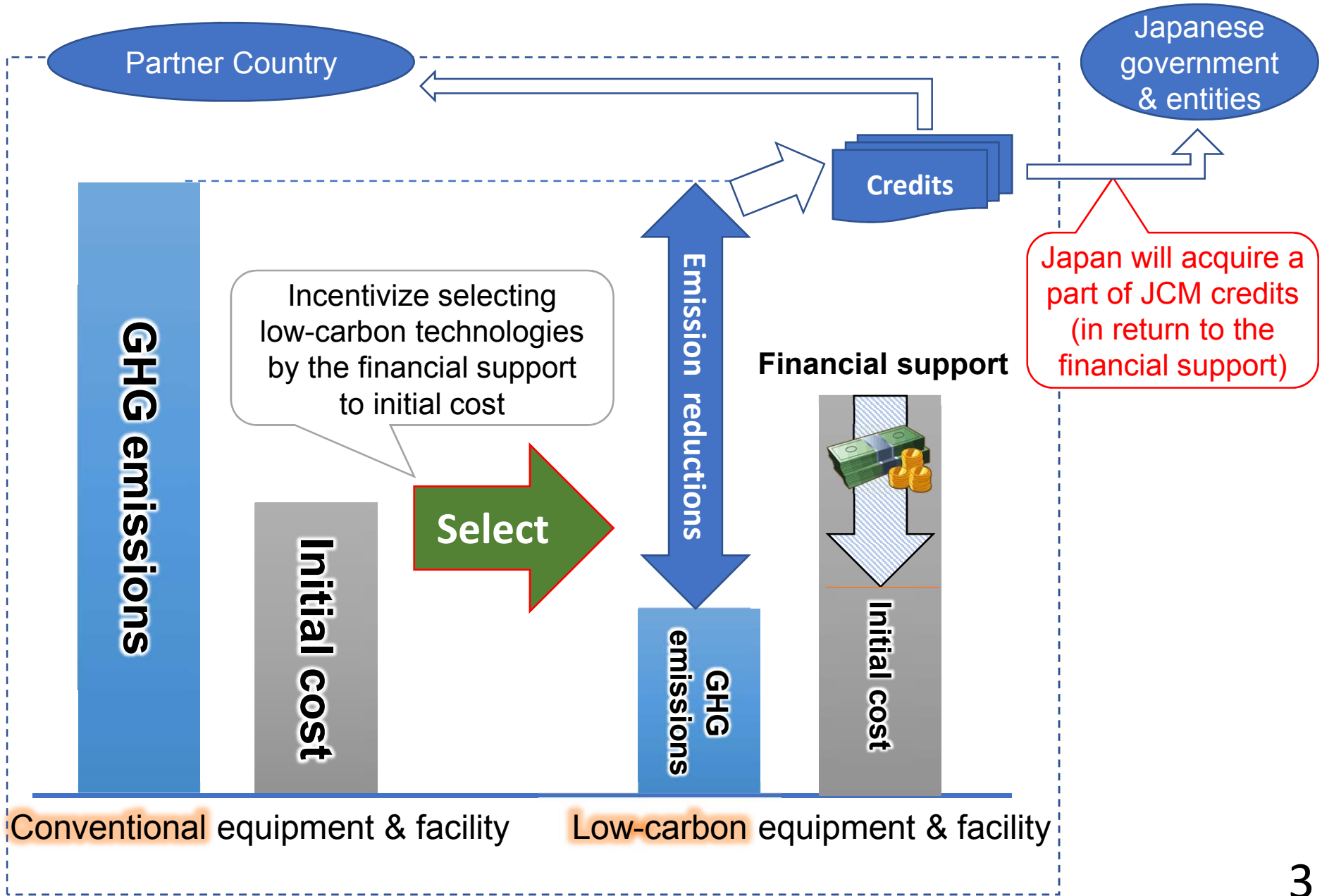


Regenerative Burners in industries, Toyotsu Machinery, Indonesia



LED street lighting system with wireless network control, MinebeaMitsumi, Cambodia

Contributions from Japan



JCM Partner Countries

- Japan has held consultations for the JCM with developing countries since 2011 and has established the JCM with Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and the Philippines.



Mongolia
Jan. 8, 2013
(Ulaanbaatar)



Bangladesh
Mar. 19, 2013
(Dhaka)



Ethiopia
May 27, 2013
(Addis Ababa)



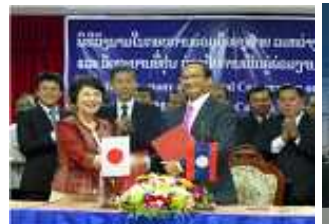
Kenya
Jun. 12, 2013
(Nairobi)



Maldives
Jun. 29, 2013
(Okinawa)



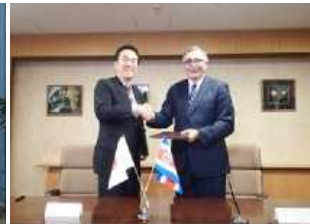
Viet Nam
Jul. 2, 2013
(Hanoi)



Lao PDR
Aug. 7, 2013
(Vientiane)



Indonesia
Aug. 26, 2013
(Jakarta)



Costa Rica
Dec. 9, 2013
(Tokyo)



Palau
Jan. 13, 2014
(Ngerulmud)



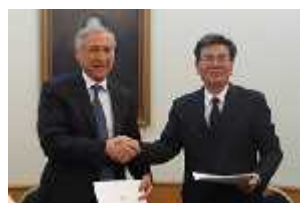
Cambodia
Apr. 11, 2014
(Phnom Penh)



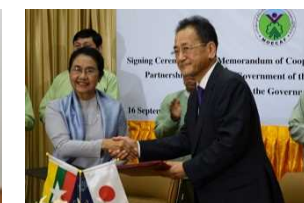
Mexico
Jul. 25, 2014
(Mexico City)



Saudi Arabia
May 13, 2015



Chile
May 26, 2015
(Santiago)



Myanmar
Sep. 16, 2015
(Nay Pyi Taw)



Thailand
Nov. 19, 2015
(Tokyo)



the Philippines
Jan. 12, 2017
(Manila)

JCM Model Projects by MOE

The Budget for projects starting from FY 2019 is 9.9 billion JPY (approx. USD 99 million) in total by FY2021

(1 USD = 100 JPY)

Finance part of an investment cost (less than half)

Government of Japan

✘ Includes collaboration with projects supported by JICA and other governmental-affiliated financial institute.

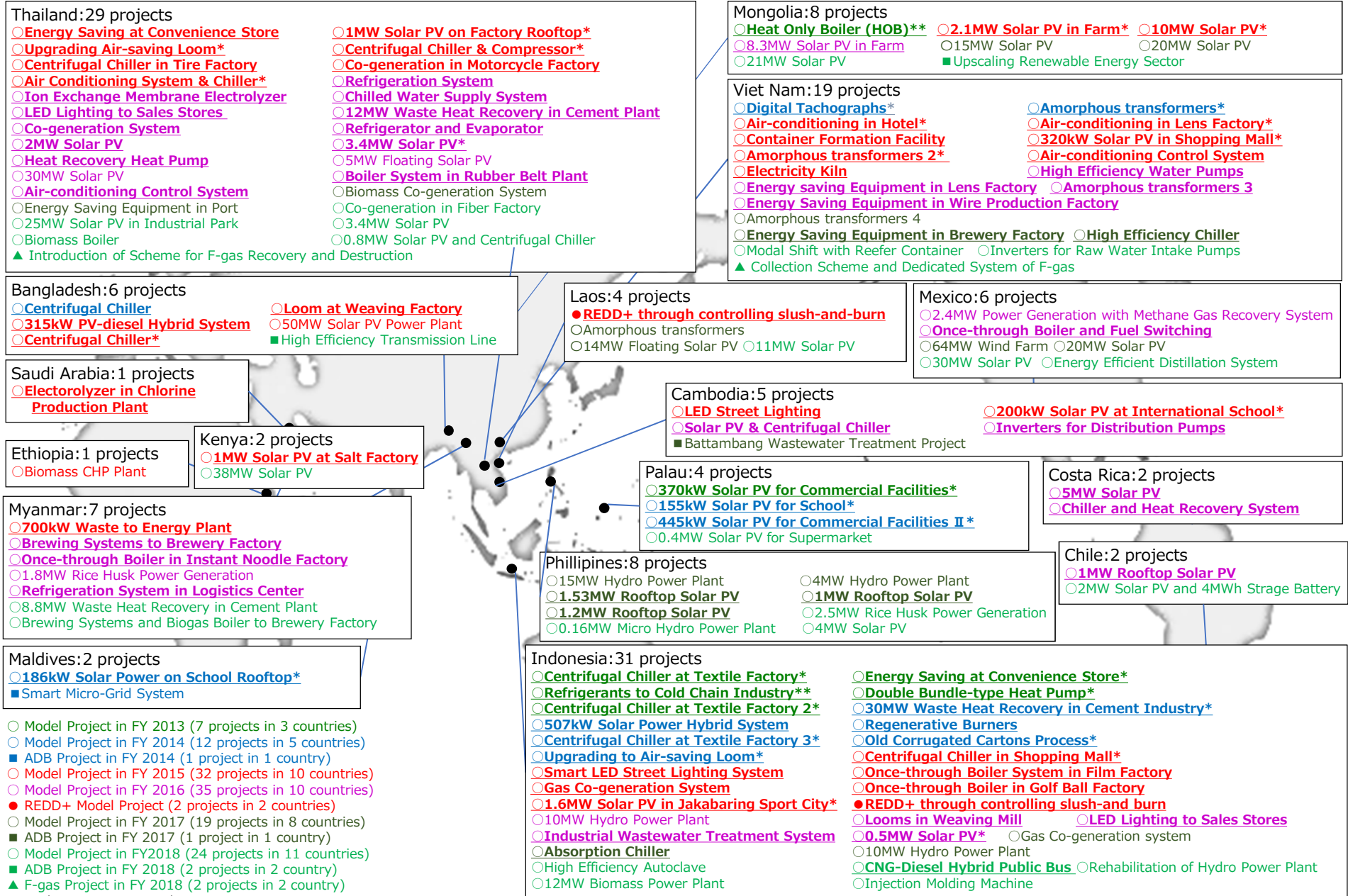
Conduct MRV and expected to deliver at least half of JCM credits issued

International consortiums (which include Japanese entities)



- Scope of the financing: facilities, equipment, vehicles, etc. which reduce CO₂ 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.

JCM Financing Programme by MOEJ (FY2013~2018) as of March 31, 2019

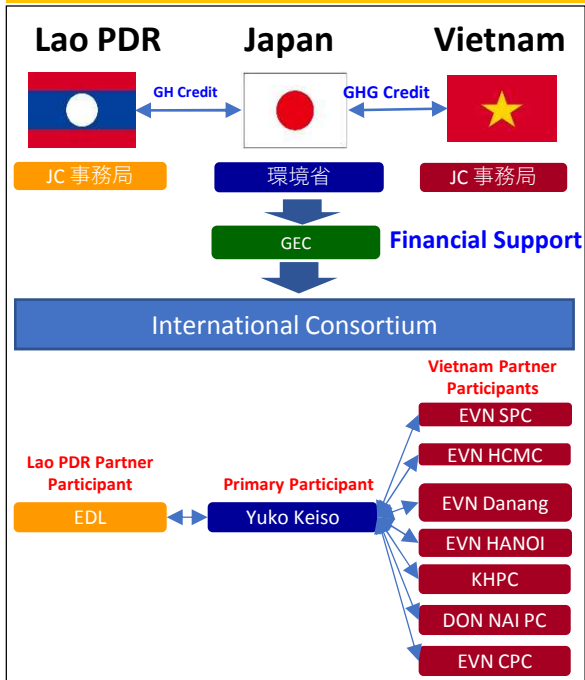


Total 137 projects in 17 partner countries

Underlined projects have started operation (88 projects)
 Projects with * have been registered as JCM projects (34 projects)

JCM Expansion Example① : High efficiency amorphous transformers from Vietnam to Lao PDR

- ★ Transformers in Vietnam are being replaced with amorphous high efficiency transformers from 2015 through 2020.
- ★ Succeeded in developing the same product and technology in Lao PDR since 2018. Preparing for expansion to other countries.
- ★ Providing excellent amorphous alloy low carbon technology. A total of 10,000 transformers introduced throughout Vietnam.



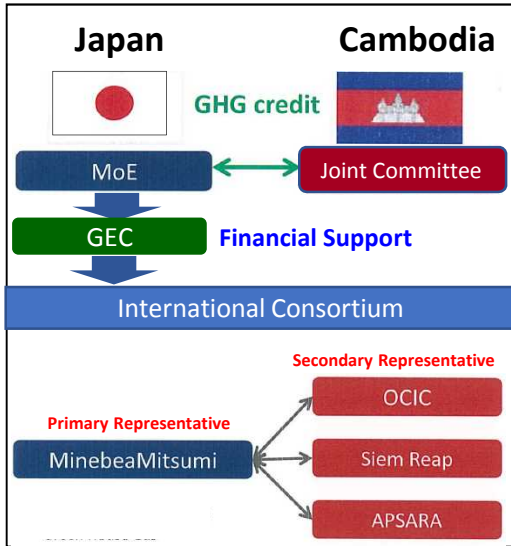
Amount of amorphous transformer introduced (as of JAN2019)

ベトナム	FY2015	FY2016	FY2017	FY2018	Total
EVN SPC	1,618	2,686	2,507		6,811
EVN HCMC		552	340		892
EVN CPC		981			981
EVN Danang		282			282
EVN HANOI		121	65		186
KHPC		111	305	30	446
DON NAI PC		168	580	207	955
Total	1,618	4,901	3,797	237	10,553

ラオス	FY2015	FY2016	FY2017	FY2018	Total
EDL				465	465

JCM Expansion Example ② : Expansion into smart city environment from LED street light network in Cambodia

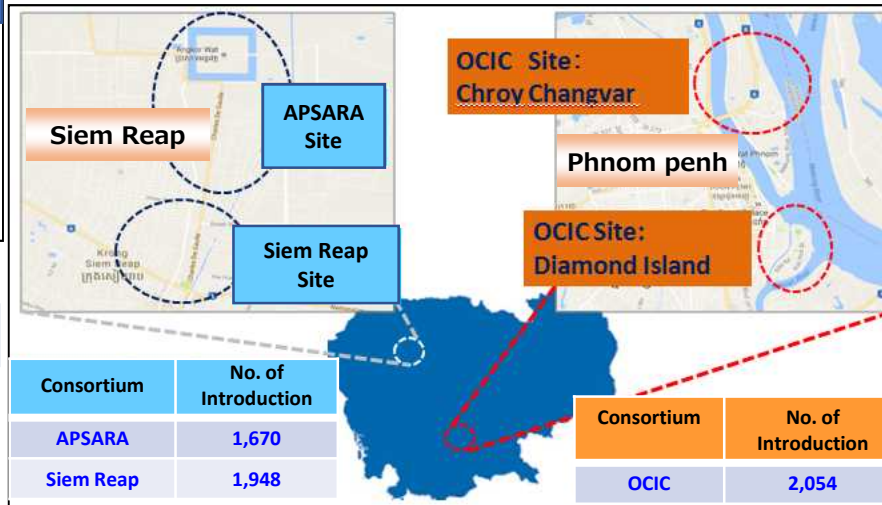
- ★ 70% energy saving is achieved by LED street light in emerging city and world heritage .
- ★ Commenced joint study with local partners to build smart city environment by wireless network environment deployment.
- ★ LED street light of 5,600 installed in Cambodia such as Phnom Penh and Angkor Wat (total installation area is 120km² in total).



APSARA (Angkor Wat)



OCIC Chroy Changvar



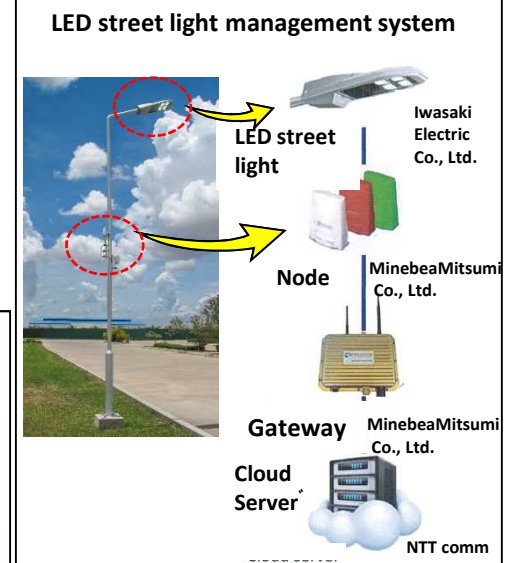
Actual number installed in Cambodia



Siem Reap Provincial Hall (SRPH)



OCIC Diamond Island



Deploying various IOT sensors and wireless networking environments will enable the Smart City environmental infrastructure.



The total footprint of the LED street light is 1.5 times that of Manhattan Island (120km²)

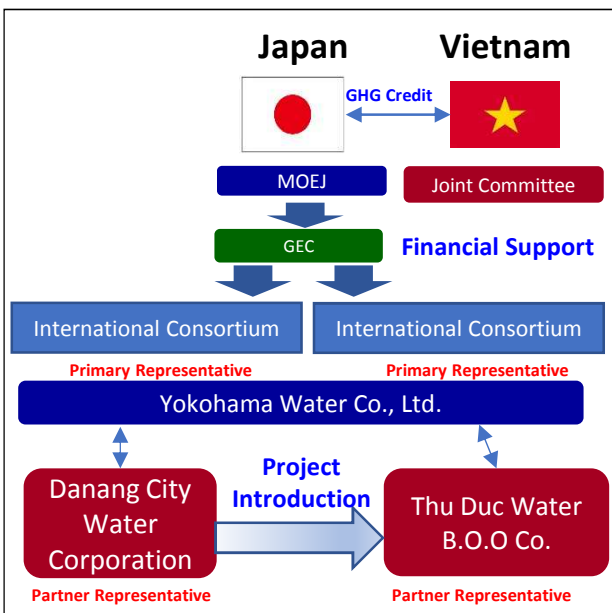


December 2016
Received Minister of the Environment Award in Cambodia

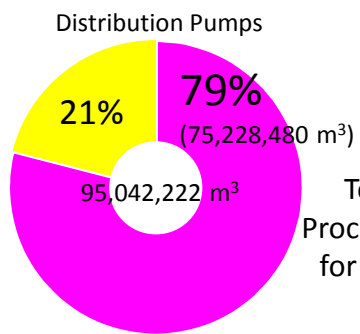
JCM Expansion Example③ : Basic infrastructure of water business in Vietnam

- ★ Yokohama City and Da Nang City signed a Memorandum of Understanding on Technical Cooperation for Sustainable Urban Development.
- ★ Representative participant utilized JCM Model Project to Danang municipal water supply corporation, introduced high efficiency pumps and conducted monitoring.
- ★ About 80% of the water treatment volume of Da Nang City is treated by JCM introduction pump.

Introduction of high efficiency pump to Danang municipal water supply corporation (representative Participant: Yokohama Water Co., Ltd.)



Pumps installed through the JCM project process major part of Danang water demand.



Pumps installed through the JCM project
 Other pumps

Vietnam

[Danang City Water Corporation]
Explained the effectiveness of JCM Model Project and high efficiency pump at the ceremony

[Ho Chi Minh City Water Treatment Plant]
Using the ceremony as an opportunity, JCM Model Project was utilized implementation of inverter of water intake pump (project ongoing)

Danang City Water Corporation

Thu Duc Water B.O.O Co. (Ho Chi Minh City Water Purification Plant)

High efficiency pumps (Da Nang City Water Corporation)

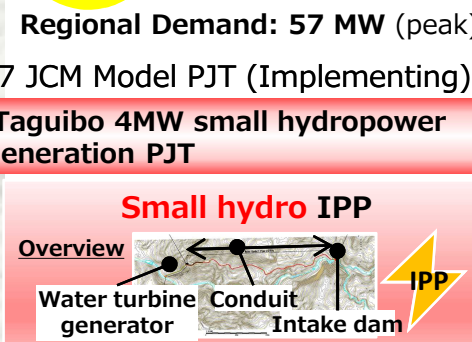
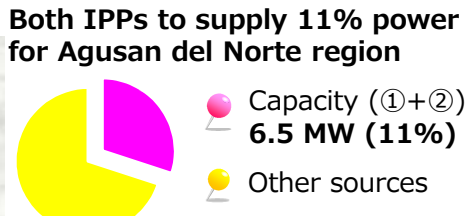
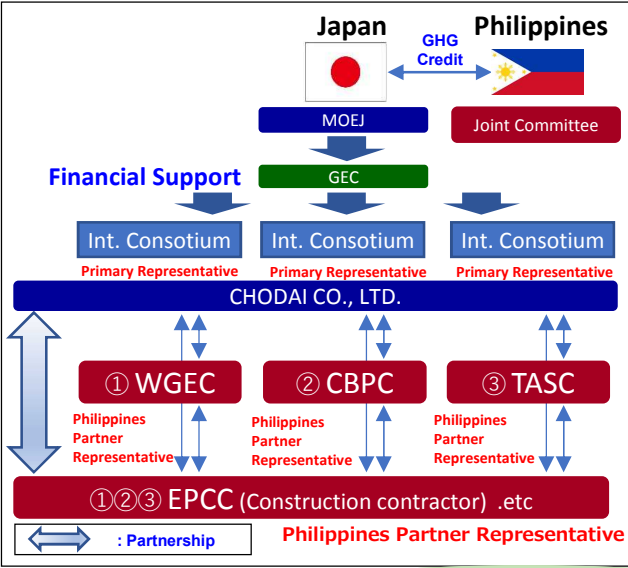


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JCM Expansion Example④ : Basic Infrastructure of Regional Development in the Philippines

- The representative participant aims to realize a stable supply of basic infrastructure by participating in and investing in power generation and water supply against the unstable infrastructure of Butuan City.
- Small/micro hydropower generation and biomass power generation are implementing by three JCM Model Projects.
- Partnering with local leading partners, developing three projects. Supply 10% of peak demand in Northern Agusan.

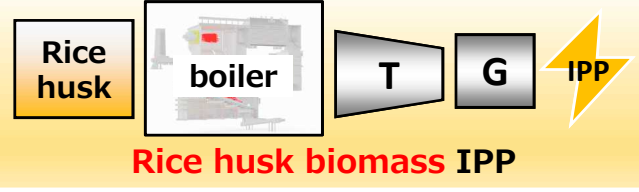
Taguibo River Small Hydroelectric Power Project / Taguibo River Water Treatment Plant Micro Hydro Power Project / Butuan City Rhinoceros Power Generation Project (Representative Participant: CHODAI CO.,LTD.)



Partnering with local leading partners
Utilizing JCM Model Projects with consulting, construction and O & M, develop renewable energy business as basic infrastructure of regional development

2019 JCM Model Project (Implementing)

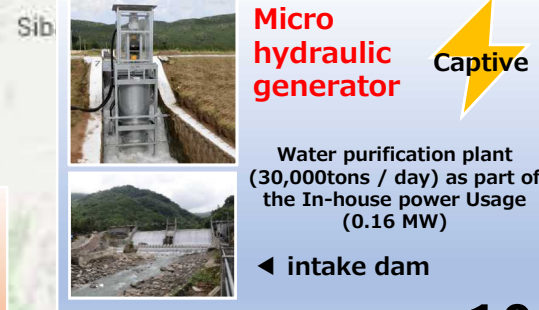
② Butuan City 2.5 MW rice husk power generation PJT



Low carbon type Industrial park Dev. PJT (Not covered by JCM)

2019 JCM Model PJT (Implementing)

③ Taguibo River WTP Micro hydro power generation PJT

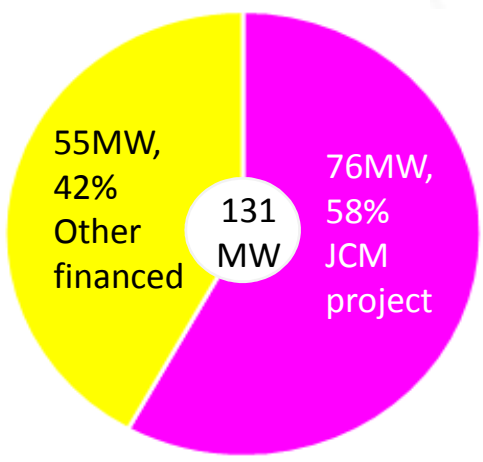
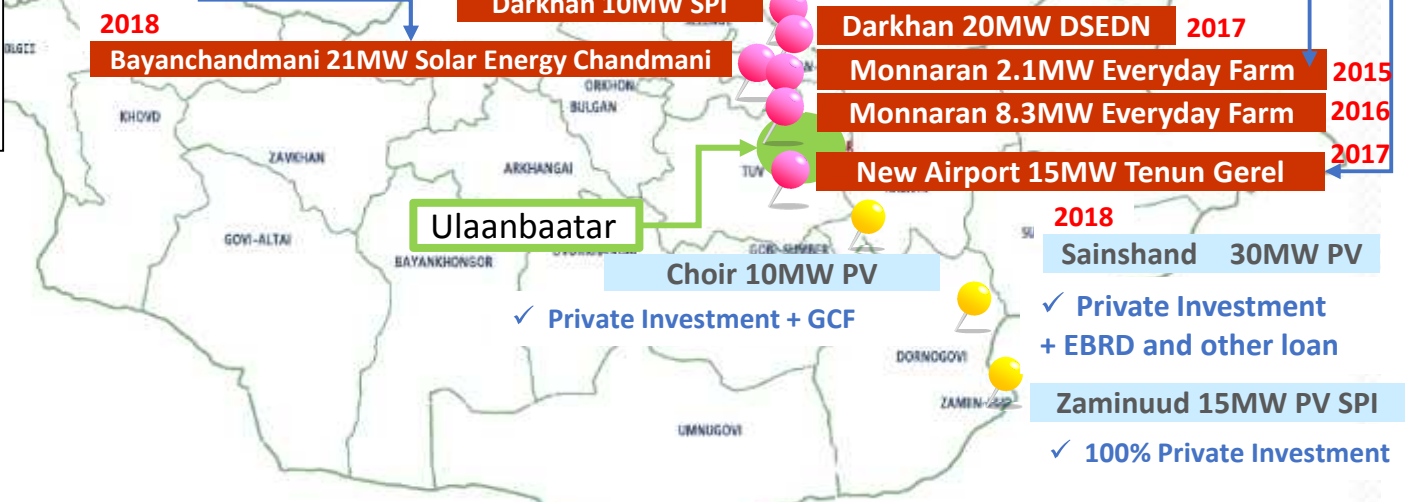
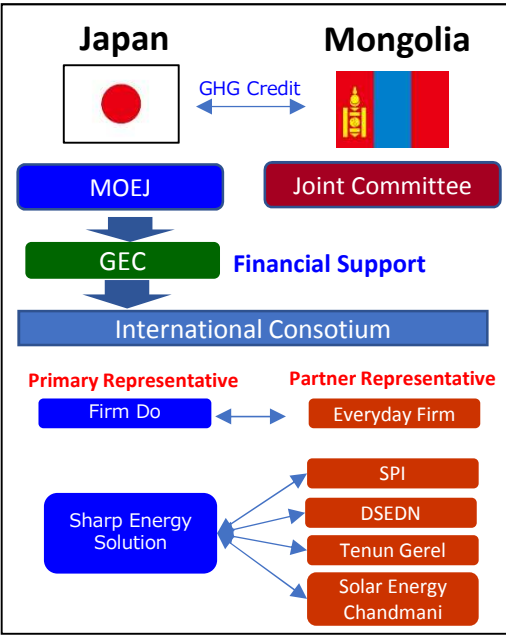


Water supply PJT (Not covered by JCM)

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JCM Expansion Example⑤ : Large-scale photovoltaic power generation projects in Mongolia

- ★ Implemented six large-scale solar power project using Japanese superior technologies in various places in Mongolia from 2015 to 2018. Promoted new private investments triggered by introduction in JCM.
- ★ Sharp Energy Solutions has implemented four projects (currently operating at two locations and introducing at two locations).
- ★ Firm Do has implemented a new model by combining agriculture and PV power generation at Monnaran.



Project Cycle of the JCM and the CDM

