OECC's activities for JCM Project Development

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Confidential

# The Effects of Climate Change

Climate change impacts highlight need for action at COP24

Emissions scenarios

Human activity is causing climate change. However, we don't know exactly how humans will behave in the future.

- **RCP8.5** indicates global average warming levels of **3.2 to 5.4°C** by 2090.
- **RCP4.5** indicates global average warming levels of **1.7 to 3.2°C** by 2090.
- **RCP2.6** indicates global average warming levels of **0.9 to 2.3°C** by 2090.

**RCP: Representative Concentration Pathways**
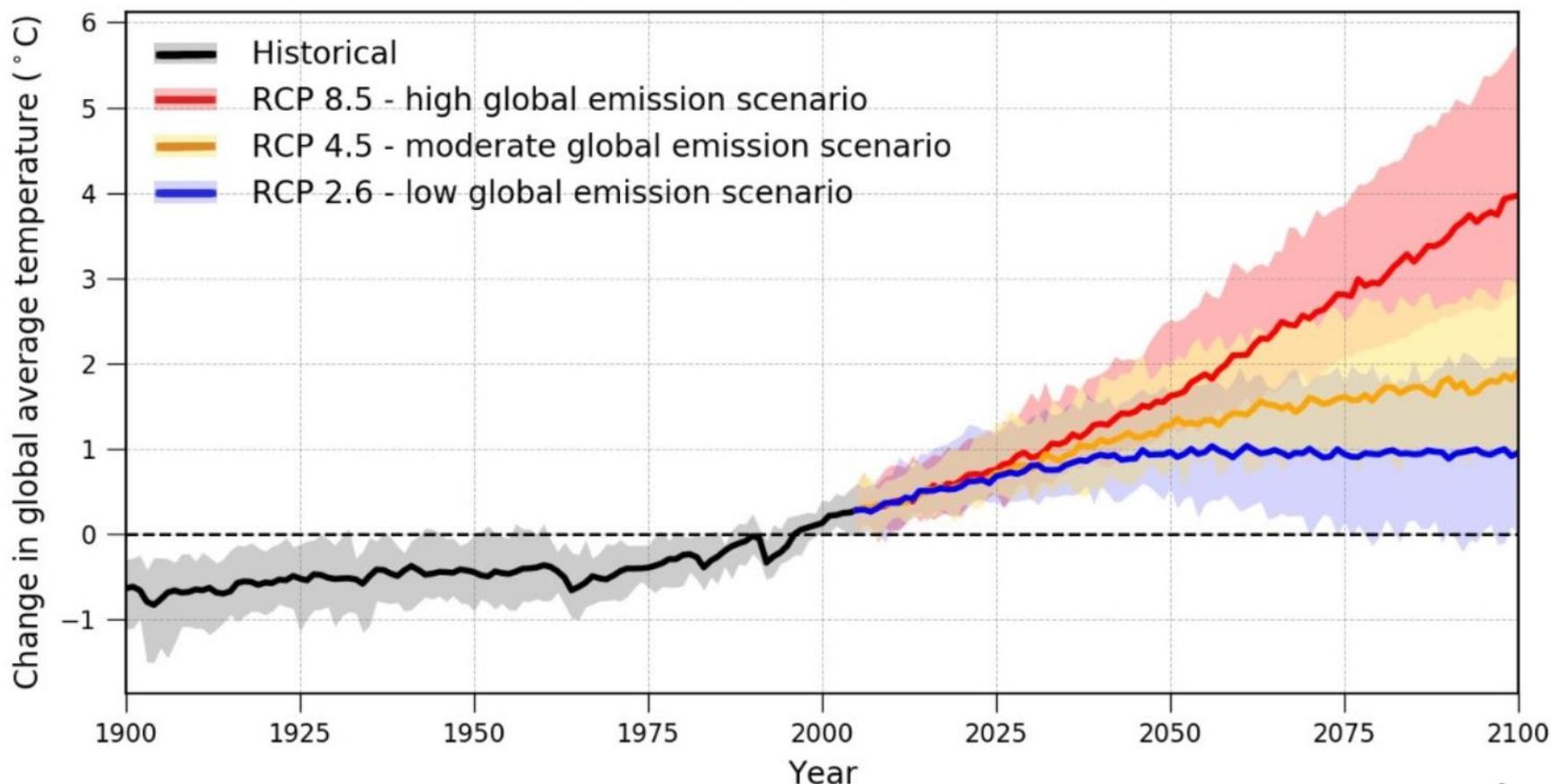
What is Climate Change?

Climate change is a change in climate patterns caused by an increase in GHG emissions, produced primarily through the combustion of fossil fuels.

Responding to climate change involves two possible approaches:
- **Mitigation: reducing and stabilizing the levels of heat-trapping GHG in the atmosphere.**
- **Adaptation: adapting to the climate change already in the pipeline.**

JCM Projects Development
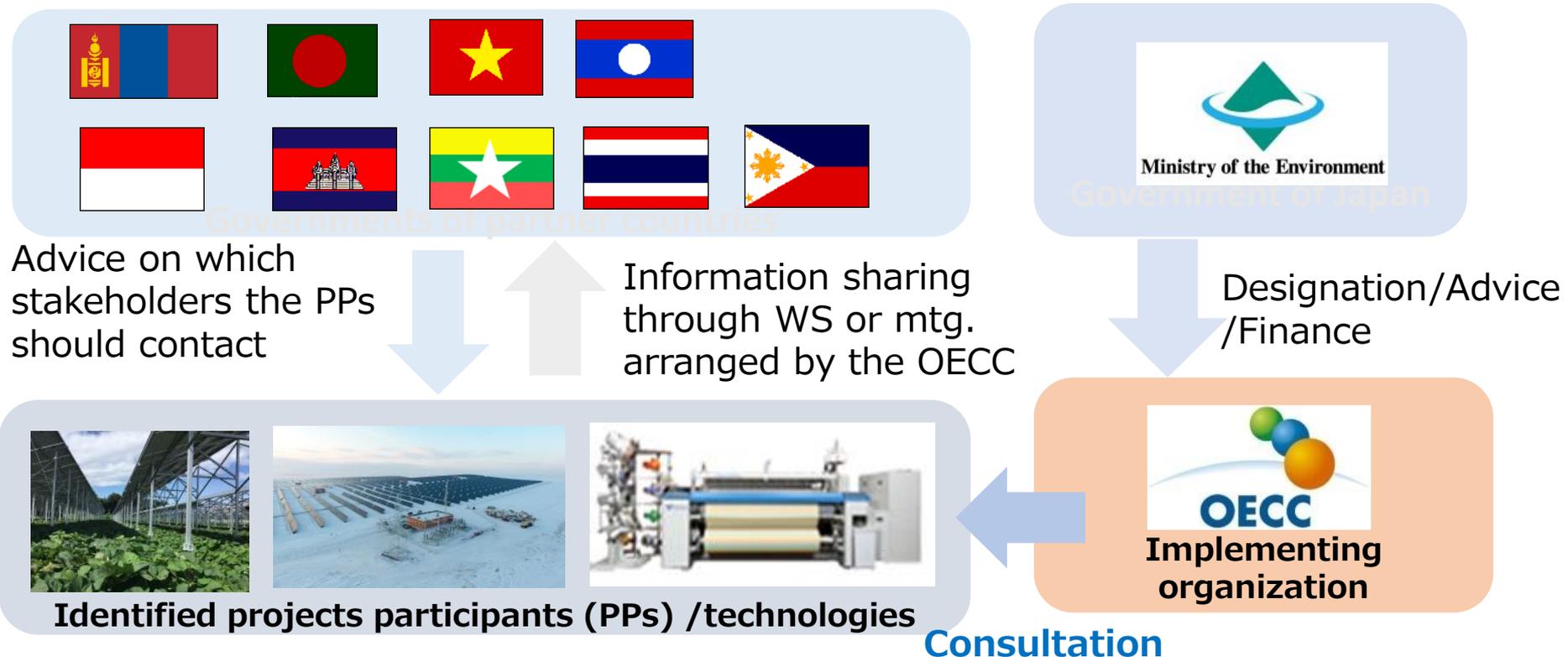
Paris Agreement – Article 2
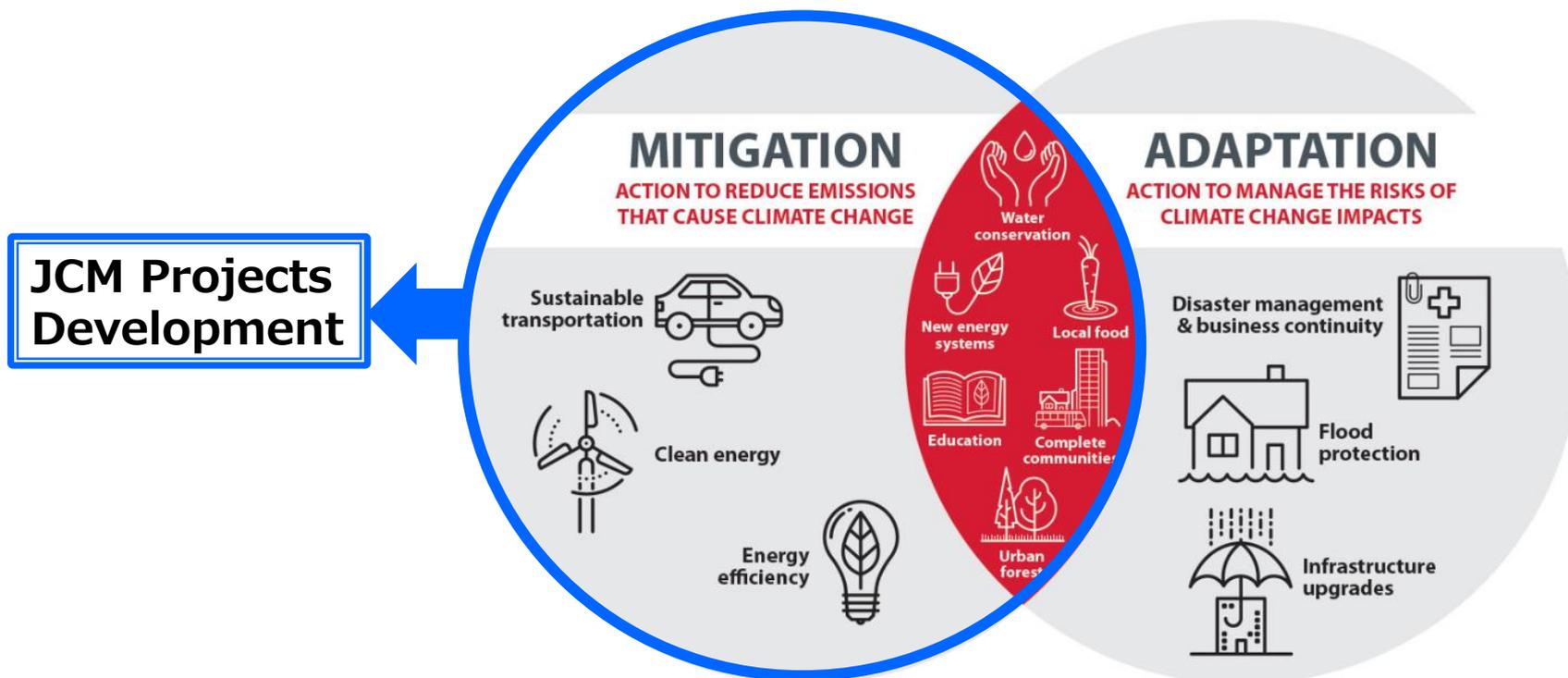
Article 2

1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

(a) **Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;**

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.
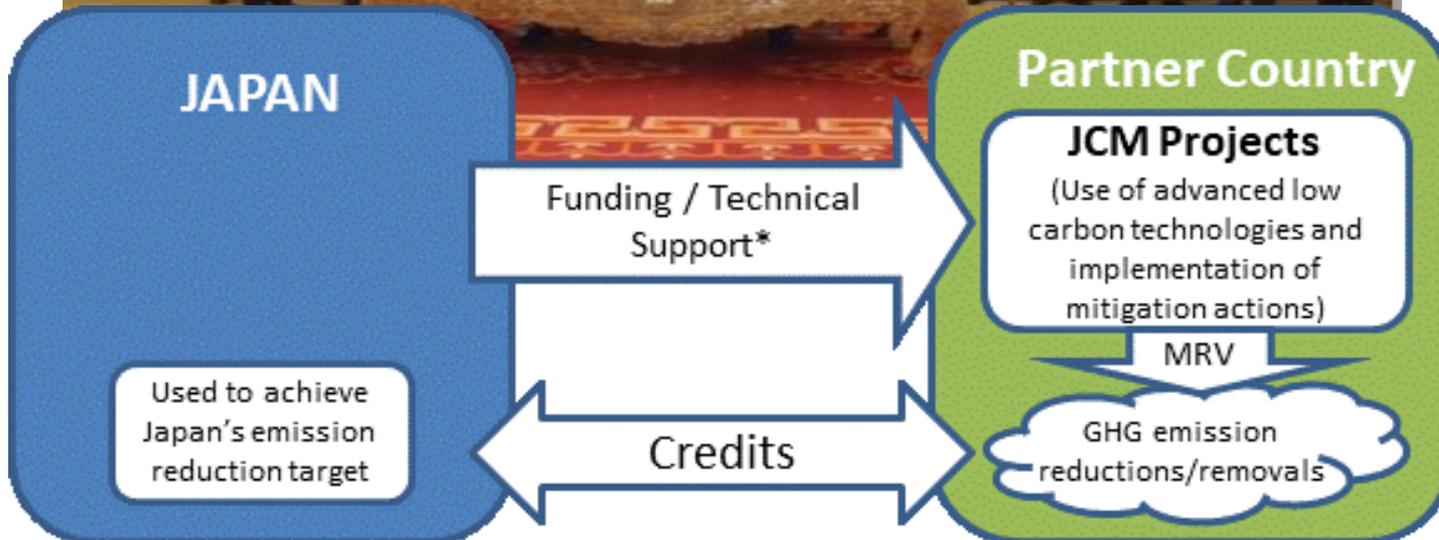
Framework of the JCM Project Development

◆ **The JCM Project Development aims to (1) develop JCM model projects in accordance with local needs and (2) find low carbon technologies with high performance.**

◆ **OECC works with 9 countries in FY2018 (Mongolia, Bangladesh, Viet Nam, Laos, Indonesia, Cambodia, Myanmar, Thailand and the Philippines.)**

Governments of partner countries

Government of Japan

Advice on which stakeholders the PPs should contact

Information sharing through WS or mtg. arranged by the OECC

Designation/Advice /Finance

Implementing organization

Identified projects participants (PPs) /technologies
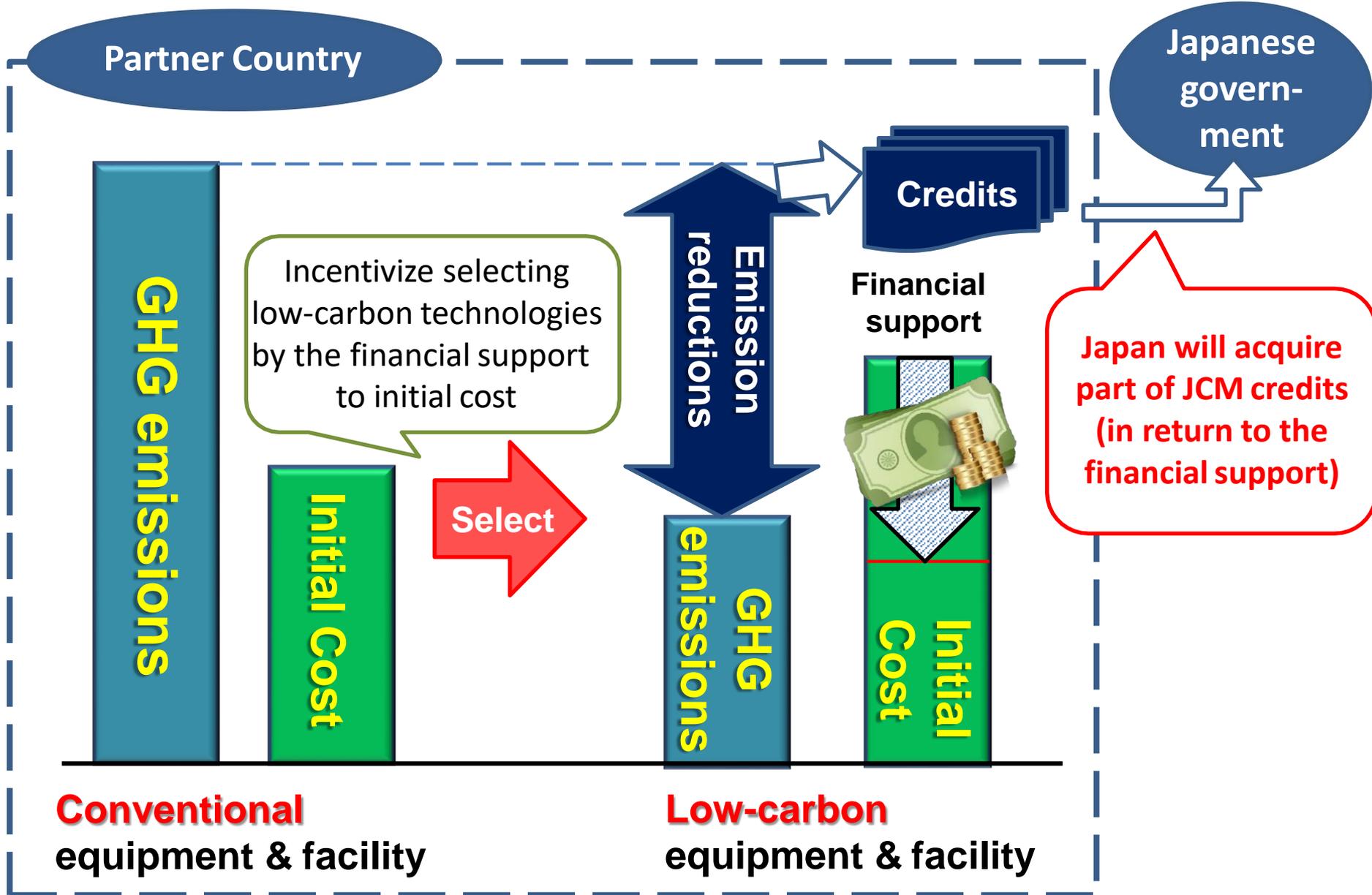
Consultation

JCM in Mongolia

Mongolia is the first to launch Joint Crediting Mechanism (JCM) on 8 January 2013

*Source of funding and/or technical support is not limited to Japan.

Basic Concept of JCM

Partner Country

Japanese govern-ment

GHG emissions

Incentivize selecting low-carbon technologies by the financial support to initial cost

Initial Cost

Select

Emission reductions

Credits

Financial support

GHG emissions

Initial Cost

Japan will acquire part of JCM credits (in return to the financial support)

Conventional equipment & facility

Low-carbon equipment & facility

JCM Model Projects by MOEJ

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

(1 USD = 100 JPY)

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

Government of Japan

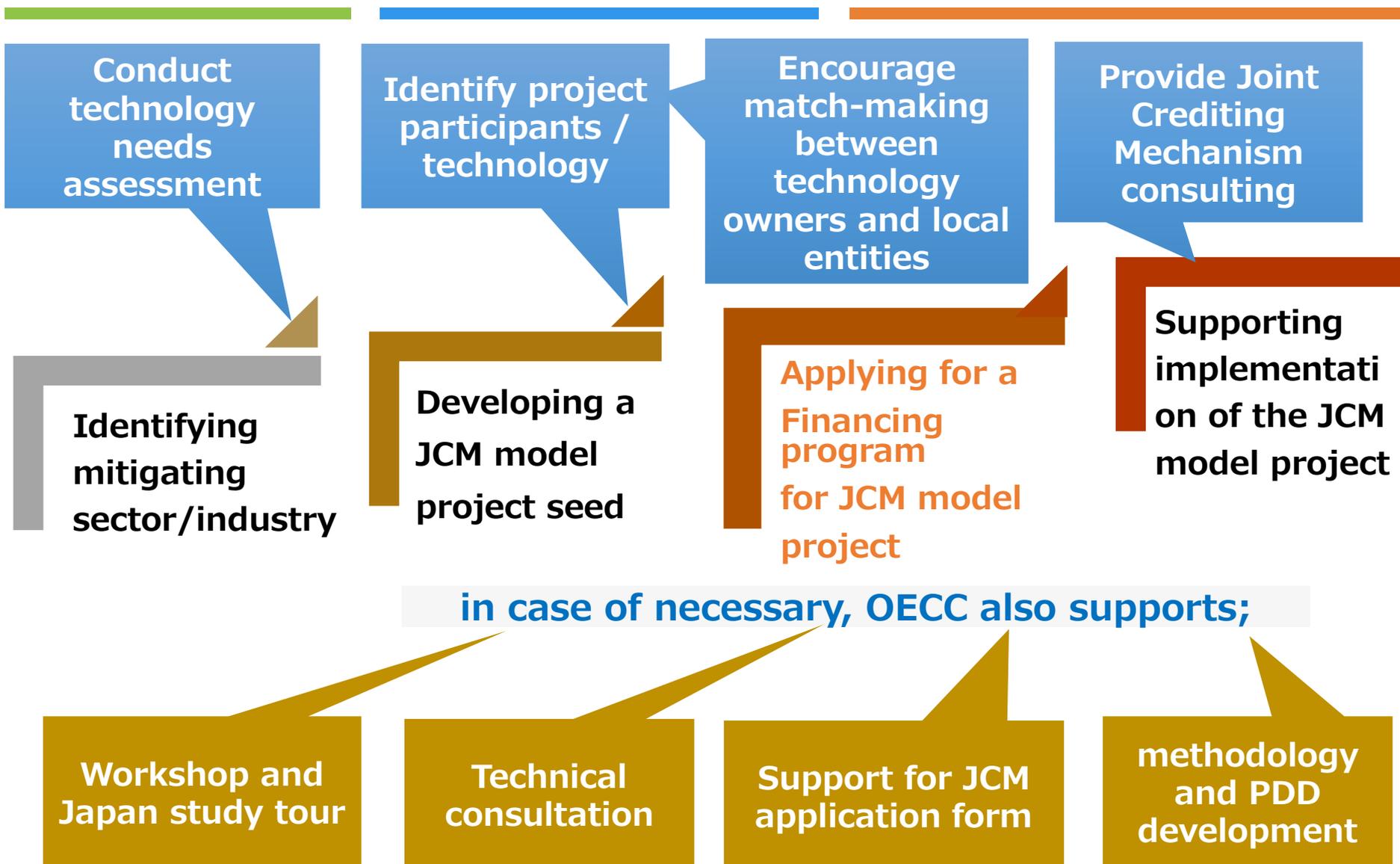Finance part of an investment cost (**less than half**)

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.

# Activity flow of the JCM model project Development and the support by OECC

Conduct technology needs assessment

Identify project participants / technology

Encourage match-making between technology owners and local entities

Provide Joint Crediting Mechanism consulting

Identifying mitigating sector/industry

Developing a JCM model project seed

Applying for a Financing program for JCM model project

Supporting implementati on of the JCM model project

in case of necessary, OECC also supports;

Workshop and Japan study tour

Technical consultation

Support for JCM application form

methodology and PDD development

JCM Model Projects in Mongolia

#	Project Title	Year	Entity	CO2 reduction	OECC's contribution
1	**Fuel Conversion** by Introduction of LPG Boilers to Beverage Factory	2019	Saisan Co.,Ltd.	5,781 tCO2/year	- **Technical consultation** (JCM application documentations)
2	**21MW Solar Power** Project in Bayanchandmani	2018	Sharp Energy Solutions	27,008 tCO2/year	-
3	Introduction of **15MW Solar Power** System near New Airport	2017	Sharp Energy Solutions	18,438 t-CO2/year	-
4	Introduction of **20MW Solar Power** System in Darkhan City	2017	Sharp Energy Solutions	22,927 tCO2/year	- **Match making with DSEDN**
5	Installation of **8.3MW Solar Power** Plant in Ulaanbaatar suburb	2016	Farmdo Co., Ltd.	9,585 tCO2/year	- **Technical consultation** - **LSC** (Local stakeholders meeting) - **Introduction of an investor** (JBIC)
6	**10MW Solar Power** Project in Darkhan City	2015	Sharp Energy Solutions	11,221 tCO2/year	- **LSC** (Local stakeholders meeting) - **Introduction of an investor** - Participation of JC
7	Installation of **2.1MW Solar Power** Plant for Power Supply in Ulaanbaatar suburb	2015	Farmdo Co., Ltd.	2,424 tCO2/ year	- **Technical consultation** - **LSC** (Local stakeholders meeting)
8	Upgrading and Installation of Centralized Control System of **High-efficiency HOB**	2013	Suuri-Keikaku Co., Ltd.	*Bornuur sum* 206 tCO2/y *118 school* 92 tCO2/y	- **Participation of JC** (approval of project & issuance of credit)

Case1 : Fuel Conversion by Introduction of LPG Boilers to Beverage Factory

This JCM project will contribute to mitigation of serious air pollution problem confronted in Mongolia.
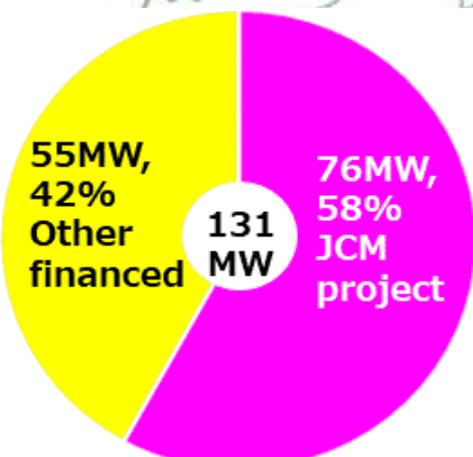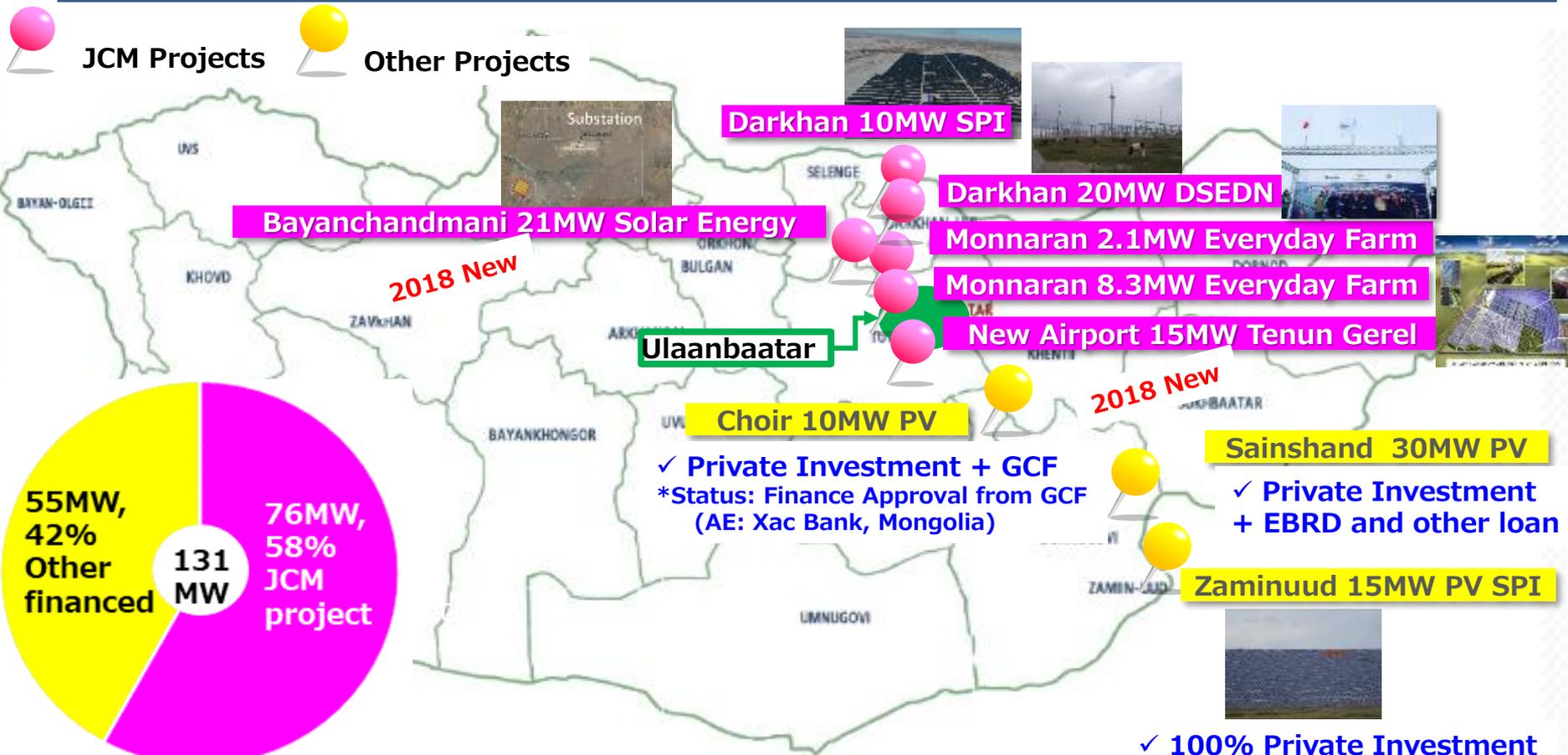

Coal Boilers

Replace

Q'ty 4

Q'ty 8

LPG Boilers

No.62 directive

Steam

Hot Water

LPG Station
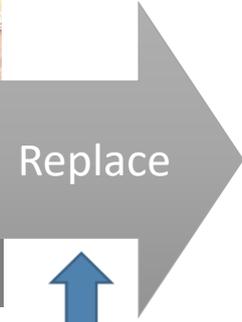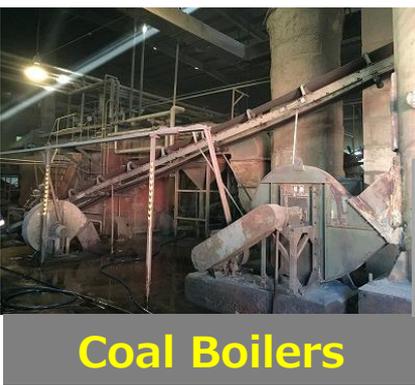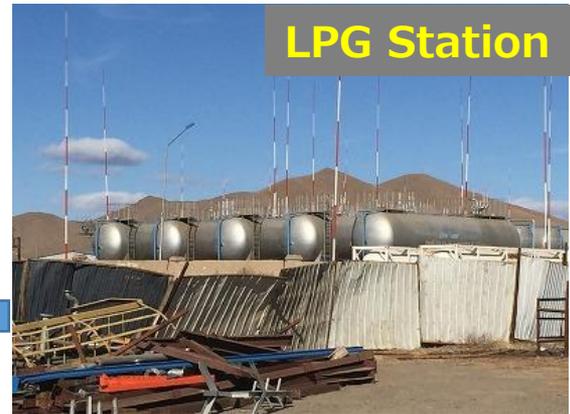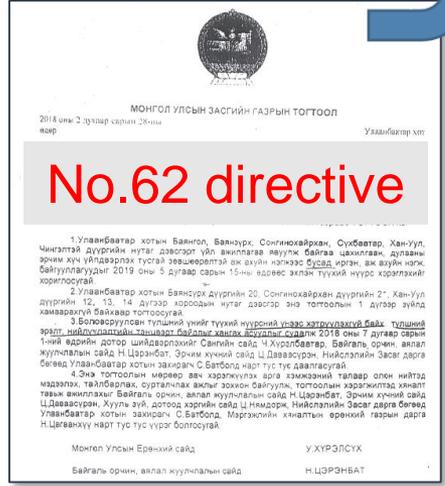
Case2 : Solar power PV - 1/2

◆ **JCM scheme contributes to Mongolia's NDC.**
Achieve 20% by 2020 & 30% by 2030 share of RE in total respectively.

◆ **58% of solar PV facilities supported by the JCM**

JCM Projects   Other Projects

Darkhan 10MW SPI

Darkhan 20MW DSEDN

Bayanchandmani 21MW Solar Energy

2018 New

Monnaran 2.1MW Everyday Farm

Monnaran 8.3MW Everyday Farm

Ulaanbaatar

New Airport 15MW Tenun Gerel

Choir 10MW PV

2018 New

✓ **Private Investment + GCF**
*Status: Finance Approval from GCF
(AE: Xac Bank, Mongolia)

Sainshand 30MW PV

✓ **Private Investment
+ EBRD and other loan**

Zaminuud 15MW PV SPI

✓ **100% Private Investment**

55MW, 42% Other financed | 131 MW | 76MW, 58% JCM project

***JCM related Contribution for NDC in Mongolia: 76 MW**
*Private Investment PV Project by the trigger of successful JCM projects: 55MW
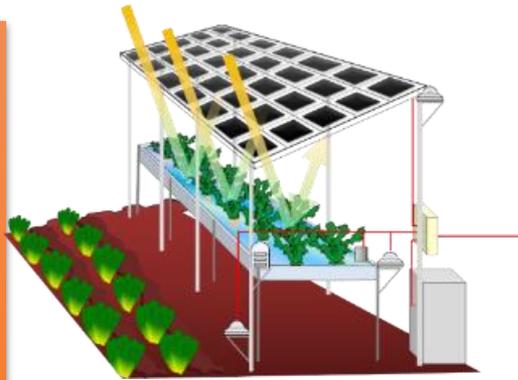
OECC's support for JCM project *ex. Farmdo (Everyday farm) PV*

Introducing A Investor → Technical Support (JCM application) → LSC (Local Stakeholders Consultation)

JC (Joint Committee)

JC (Approval of methodology & Issuance of Credits)

LSC in Monnaran

Monnaran Farm

Ulaanbaatar
Улаанбаатар

Google My Maps

LSC in UB city

Case3 : High Efficiency HOB

OECC

The 1st JCM Project in Mongolia:

Contributing to GHG emissions reduction & to mitigate heavy air pollution

118 School

Boiler room

CARBOROBOT HOB

JCM Label

JFJCM (Japan Fund JCM)

JFJCM

Grant for Incremental cost of advanced low-carbon technologies

Interest subsidy to ADB-financed loans

Sovereign Projects
- Finance to the governments and public sector entities, such as state-owned enterprises

Non-Sovereign Projects
- Direct financial assistance to private sector projects to leverage a large amount of finances from commercial sources

Amount of grant / interest subsidy: up to 10% of the project cost (maximum is $10 million)

#	Project Title	Year	Entity	CO2 reduction	OECC's contribution
1	Upscaling Renewable Energy Sector Project **5MW solar PV + battery**	2018	MOE	6,423 tCO2/year	Individual consultant for ADB
2	Energy Efficiency and Urban Environment Improvement Project **Amorphous Transformer**	2016	MOE		Individual consultant for ADB

# JFJCM Case1: Upscaling Renewable Energy Sector Project

International tender will open at the end of this year.

Location	Province	Component
Umnogovi	Uvs	10MW wind
Altai	Govi-Altai	10MW solar PV
Altai Soum (independent grid)	Govi-Altai	500kW wind + battery
Uliastai	Zhavhan	5MW solar PV + battery
Telmen	Zhavhan	5MW wind
Muren	Khovsgol	10MW solar PV
Hovd and Aimag Centers	Hovd/Uvs/Govi-Altai	0.5MW heat pumps

ADB Project

JFJCM

Peak shaving
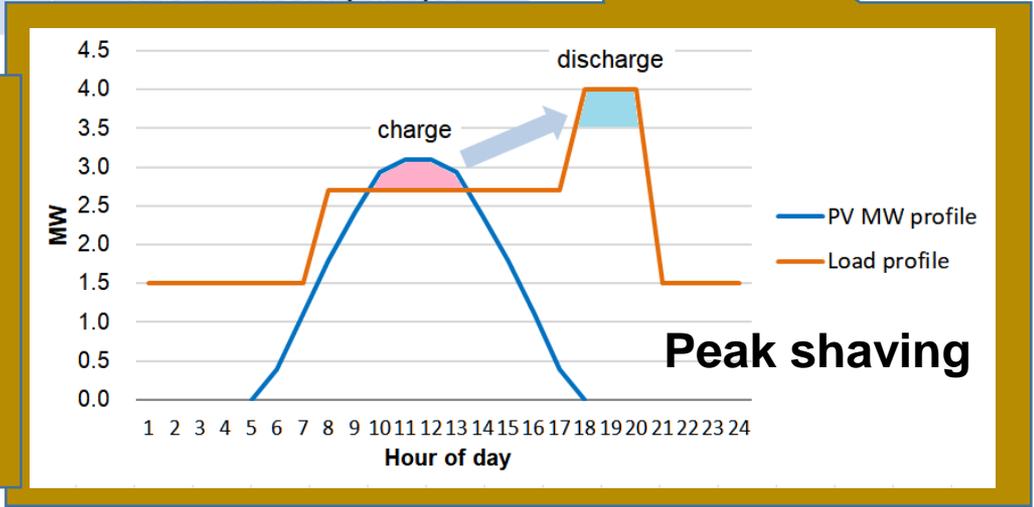
JFJCM Case2: Energy Efficiency and Urban Environment Improvement Project

ADB Project

Mitigation using common technology

GHG mitigation component

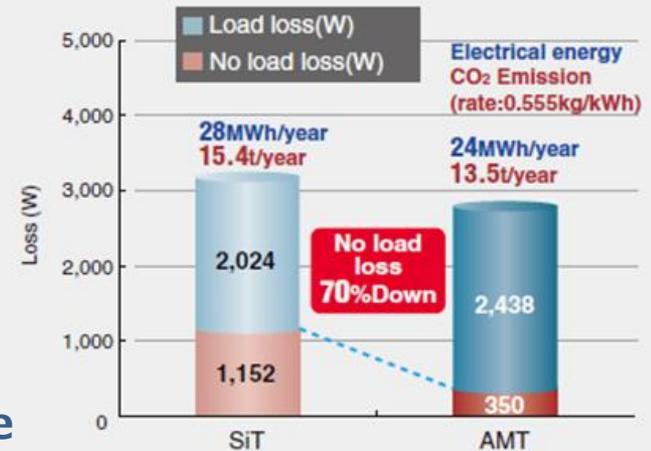**Increment cost of advanced low carbon technology**

| ADB Loan | Grant | JFJCM |

CHP-5 (450 MW)

Amorphous Core Transformer

Load loss(W)
No load loss(W)

Electrical energy
CO₂ Emission
(rate:0.555kg/kWh)

28MWh/year
15.4t/year

24MWh/year
13.5t/year

No load loss 70%Down

2,024

2,438

1,152

350

SiT

AMT

Loss (W)

Since the parent project (CHP-5) fell out, this JFJCM project as a sub-project also fell out.

Why **MRV** Methodology necessary?

M: Measurement to grasp reduced GHG emissions

R: Reporting to report GHG reductions with prescribed Excel form
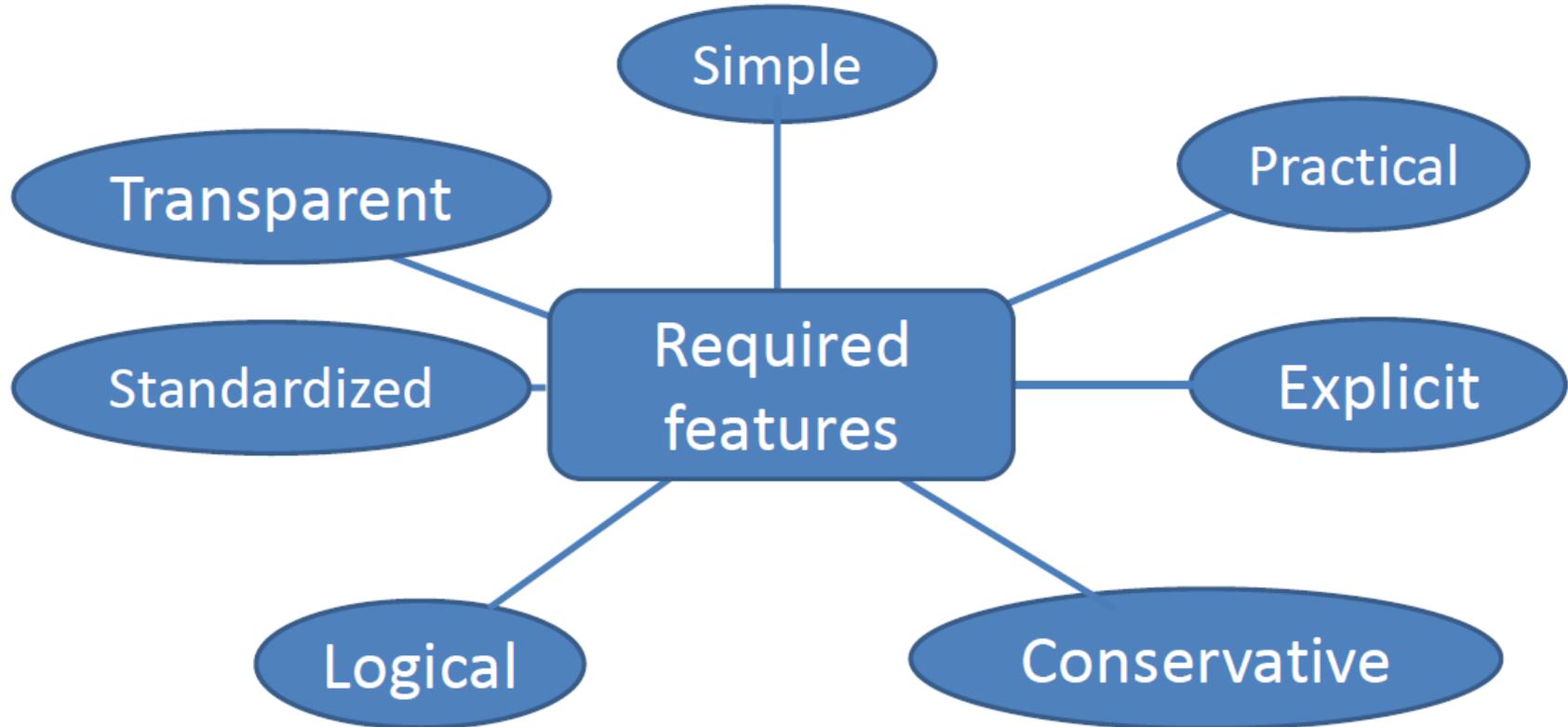
V: Verification to verify monitoring report by TPE

Reduced GHG emissions in JCM project
➡ To be used to achieve emission reduction target of Japan (and partner country)

⬇

◆ To be appropriate qualitatively
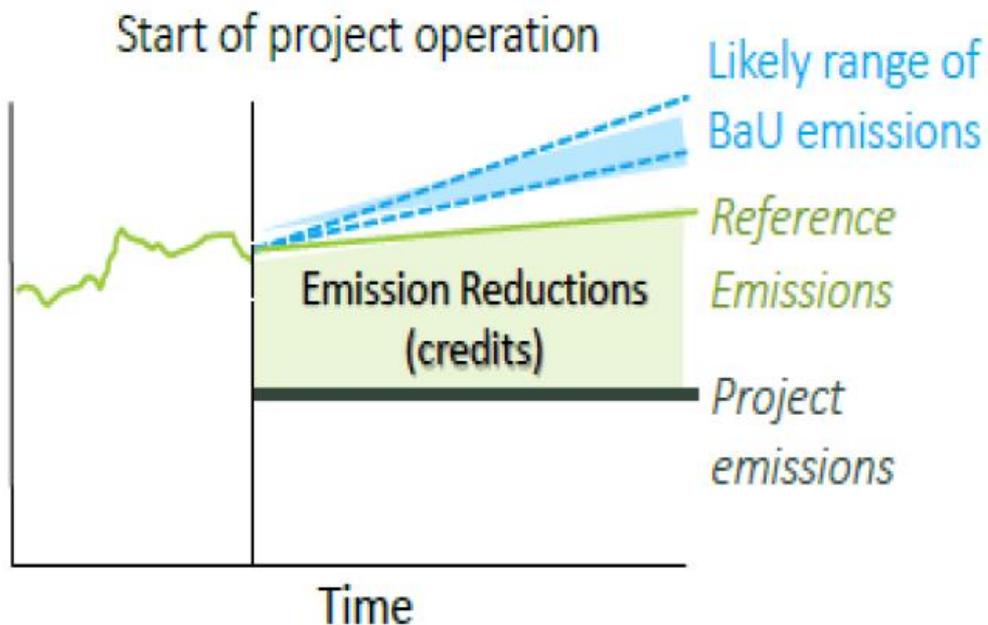◆ To be objectively handled
◆ To be proved authentic
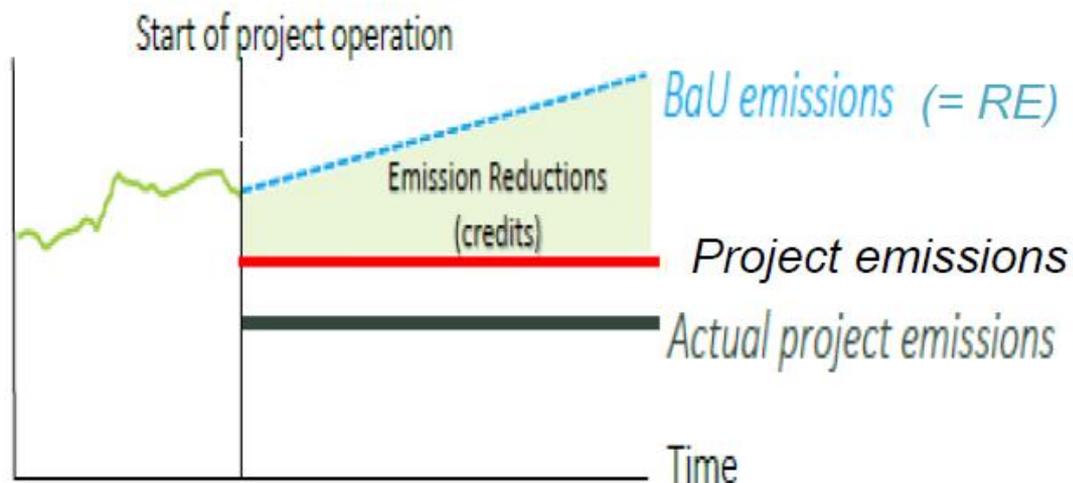
⬇

Officially approved Methodology is necessary

Calculation of Emission Reductions

OECC

ER = RE −PE
RE < BaU Emissions
BaU (Business as Usual)

Start of project operation

Likely range of
BaU emissions

Reference
Emissions

Emission Reductions
(credits)

Project
emissions

Time

ER = RE −PE
RE = BaU
PE = Actual PE

Start of project operation

BaU emissions (= RE)

Emission Reductions
(credits)

Project emissions

Actual project emissions

Time

Баярлалаа !!

Thank You!!

ご清聴ありがとうございました !!