Recent Development of Japan Fund for the Joint Crediting Mechanism

Webinar on the JCM Implementation in Republic of Palau

- Innovation for Carbon Neutrality through the JCM -

18 February 2022

Overview of Asian Development Bank

- Established in 1966
- 68 members, 49 regional members, 41 borrowing members
- 3,000+ employees globally
- Triple-A credit ratings (Moody's / S&P / Fitch)
- Commitments in 2020:

($ million)	Total ADB
Total ADB Operations*	**31,594**
Sovereign	**26,826**
Loan	25,749
Guarantee	-
Grants	1,077
Nonsovereign	**1,406**
Loan	1,151
Equity Investment	255
Guarantee	-
Others including Technical Assistance	**3,363**

* Does not include co-financing including trust funds
Source: ADB Annual Report 2020.

ADB's commitment to tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability: Strategy 2030

Addressing remaining poverty and reducing inequalities

Accelerating progress in gender equality

At least 75% of number of ADB committed operations by 2030

Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability

At least 75% of number of ADB committed operations by 2030, total of $100 billion from ADB's own resources from 2019 to 2030

Making cities more livable

Promoting rural development and food security

Strengthening governance and institutional capacity

Fostering regional cooperation and integration

Key Approaches

Expanding private sector operations

1/3 of number of ADB committed operations by 2024

Catalyzing and mobilizing financial resources for development

$1 in private sector operations financing matched by $2.50 of cofinancing

Strengthening knowledge services

ADB's Carbon Market Program

Mobilizing carbon finance for incentivizing investments in low-carbon technologies

Future Carbon Fund

- Commenced in 2009
- Provides financial and technical support for CDM projects by purchasing post-2012 CERs
- **$115 million** contributed by 4 governments and 2 private sector entities from Europe and Asia
- Contracted **8.68 million CERs** with an investment of $53.0 million
- Supports **33 CDM projects in 10 DMCs**
- Provides carbon finance support to 1.1 GW renewable energy projects

Japan Fund for the Joint Crediting Mechanism

- Commenced in June 2014
- Provides grants for advanced low-carbon technologies in ADB-financed and administered projects utilizing the Joint Crediting Mechanism initiated by Japan
- **$88.46 million** contributed by the Government of Japan
- Supports five mitigation activities in **Maldives, Bangladesh** and **Mongolia**

Article 6 Support Facility

- Established in 2018
- Provides technical, capacity building, and policy development support to enhance DMC's preparedness to participate in new carbon markets under the framework of Article 6
- **$5 million** facility funded by ADB and the governments of Germany and Sweden
- Supports **Bhutan, Indonesia, Mongolia, Pakistan, Philippines, Thailand** and **Viet Nam**.

Technical Support Facility

- Established in **2006**
- Implemented through a series of **6 Technical Assistance projects**, with a total amount of **$13.25 million**
- Provides technical and capacity building support for enhancing mitigation actions through carbon markets
- New TA on **Promoting Life Cycle Management of Fluorocarbons** will support DMCs in promoting proper management of fluorocarbons

CDM: Clean Development Mechanism; CER: certified emission reduction; ETS: Emission Trading Systems

Japan Fund for the Joint Crediting Mechanism

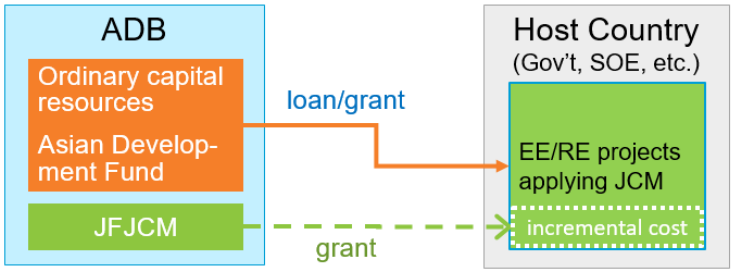
- Established in June 2014 as one of ADB's trust funds
- Contribution by Government of Japan: **$88.46M** (2014-2021)
- Provides **financial incentives (grant)** for adoption of **advanced low-carbon technologies** in **ADB-financed projects** that use the Joint Crediting Mechanism (JCM)*
- Both **sovereign** and **nonsovereign** projects are eligible

* JCM is a bilateral carbon market mechanism initiated by the Government of Japan.

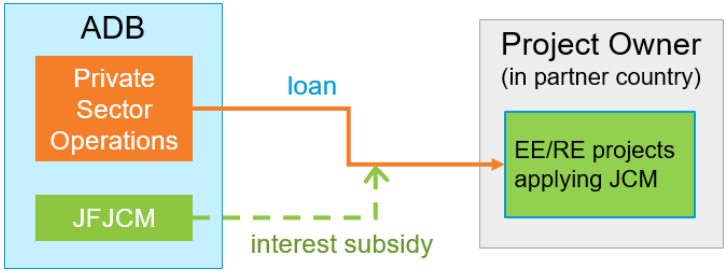
11 out of 17 JCM partner countries are ADB Developing Members

2013	2014	2015	2016	2017
Mongolia Bangladesh Maldives Viet Nam Lao PDR Indonesia	Palau Cambodia	Myanmar Thailand		Philippines
Ethiopia Kenya Costa Rica	Mexico	Saudi Arabia Chile		

JFJCM support to ADB projects (sovereign)



JFJCM support to ADB projects (nonsovereign)



JFJCM approved projects

#	Project	Country	JFJCM grant	Approval	Technologies supported
1	Preparing Outer Islands for Sustainable Energy Development Project (POISED)	Maldives	$5 million	Mar 2015	Advanced battery system and energy management system (EMS)
2	Southwest Transmission Grid Expansion Project	Bangladesh	$7 million	Jul 2018	Energy efficient transmission lines
3	Upscaling Renewable Energy Sector Project	Mongolia	$6 million	Sep 2018	Solar PV with advanced battery system and EMS
4	Improving Access to Health Services for Disadvantaged Groups Investment Program	Mongolia	$3.48 million	Oct 2019	Energy efficient HVAC, high insulation window, rooftop solar PV and ground source heat pump
5	Greater Male Waste to Energy Project	Maldives	$10 million	Aug 2020	Waste to energy plant (incineration)
			$31.48 million		

Case study 1: micro-grid technology in Maldives

Project name	Preparing Outer Islands for Sustainable Energy Development Project
JFJCM grant	$5 million
Technology supported	Advanced battery system and energy management system
Description	On top of 1.6 MW of solar PV installed under the project, battery storage and EMS supported by JFJCM will: ➢ Smooth out the fluctuation of solar PV generation ➢ Optimize diesel generator operation ➢ Integrate large amounts of renewables to the grid
Location	Addu, Maldives
Emission reductions	1.3 thousand tCO_2/yr (estimate)

Signing ceremony for the contract on battery system and EMS

Project Site / Source: Ministry of Environment and Energy, Maldives

Locations of the Project

Population: approx. 32,000
Peak load: 6.0 MW, Current power supply: by 15 diesel generators
1.6 MW PV system has been installed (as of May 2019)

Hithadhoo school 246 kW

STO Warehouse 193 kW

Sharafuddin School 375 kW

Addu High School 160 kW

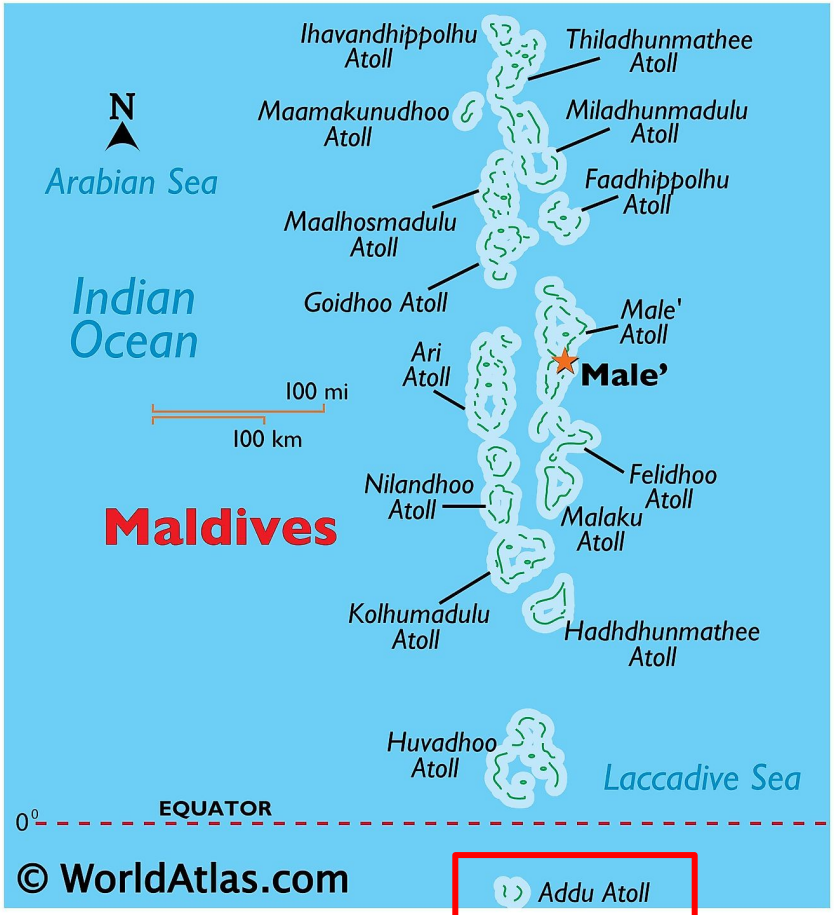
Convention centre 626 kW

Hithadhoo Power station

Connection for 1.6 MW PV system

EMS and BESS under operation

Addu City



Source: WorldAtlas.com

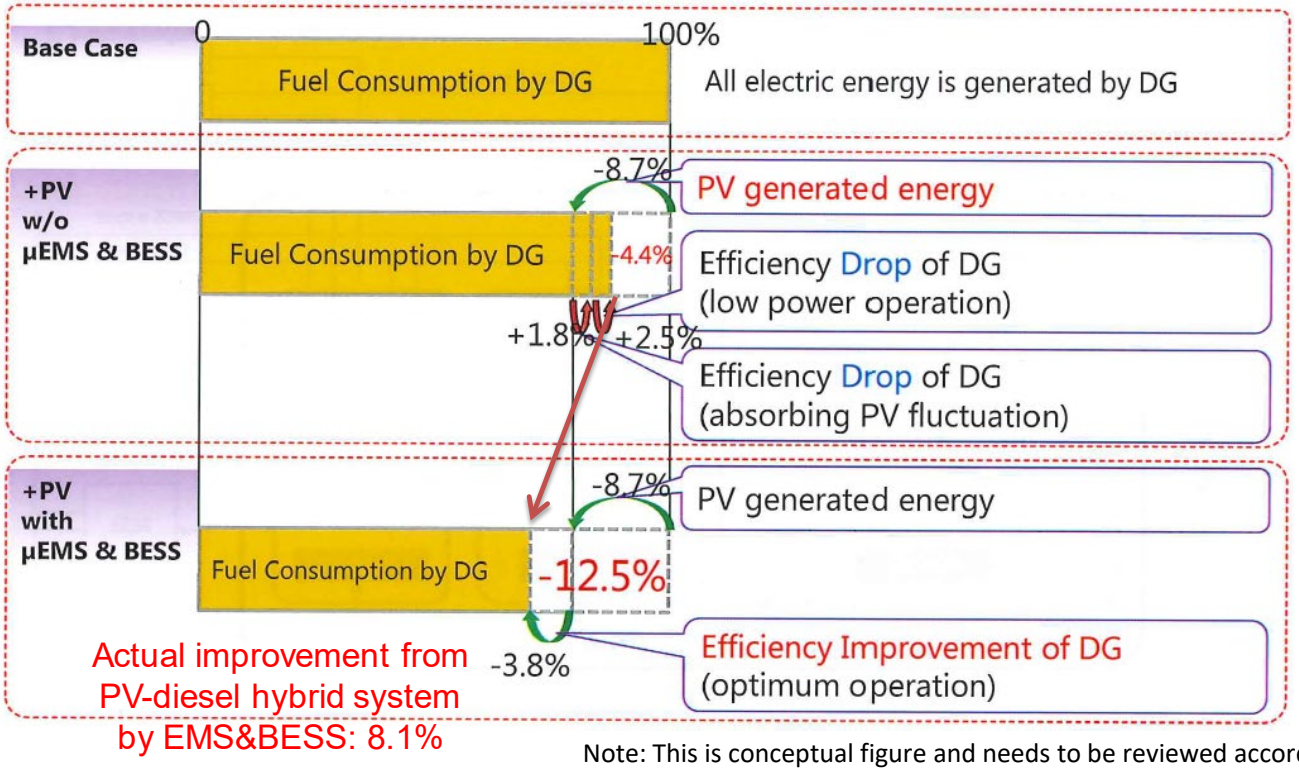
BESS and EMS under operation

BESS under operation

EMS training

BESS and EMS
in Hithadhoo Power station

Expected impact of EMS-BESS with PV system



Note: This is conceptual figure and needs to be reviewed according to demand increase.
Simulation is conducted in case of 1.7 MW PV system with 4.5 MW diesel grid.
Source: "Micro-grid System in the Addu Atoll", March 2014

- Advanced EMS & BESS enables maximum use of solar energy as well as higher efficiency of existing diesel generators (DGs)
- **Without** the EMS & BESS, efficiency drop of DGs will be caused and solar PV will bring only 4.4 % reduction in fuel consumption by DGs.
- **With** the advanced EMS & BESS, efficiency of DGs will be improved, and **12.5 % reduction** will be achieved, which means that the PV system with the EMS & BESS is expected to reduce fuel consumption by DGs by about **three times** than the PV system without them.

SDG Co-benefits

Projects supported by JFJCM will bring significant environmental, social and economic co-benefits.

The POISED project will:

- increase energy supply and grid stability and **reduce the cost of energy for consumers**
- contribute to reduction of diesel oil use, resulting in **improved energy security** and trade balance of the Maldives as the country heavily depends on imported diesel for power generation;
- create **income-generating opportunities**, including skilled labor.
- **improve local air quality** by reducing emissions of air pollutants such as SOx, NOx and particulate matter.

Pre-feasibility study for hydrogen infrastructure in Maldives and Palau

Purposes of the survey	➢ to identify the opportunities to introduce green hydrogen infrastructure in the Maldives and Palau, which are partner countries of the JCM; ➢ to contribute to the decarbonization of these countries; ➢ to assess if the identified opportunities can be developed as ADB-financed projects in future with possible support from JFJCM.
Survey period	Nov 2020 – Apr 2022
Amount	$100,000 from JFJCM
Expected deliverables	➢ Report on hydrogen technology, market and policy, highlighting good practice ➢ Report on hydrogen demand and supply chain ➢ Options for pilot-scale project on hydrogen, for energy production, marine transport and/or others

Conclusion

- JFJCM provides support for introduction of advanced low-carbon technologies, which can help Palau to accelerate its efforts towards **carbon neutrality** and to achieve **SDGs**, by utilizing the JCM under Article 6 of the Paris Agreement.
- JFJCM support can be used to **demonstrate** the effectiveness of the advanced technologies and to **build local capacity**, which can facilitate technology transfer and dissemination.
- To increase penetration of renewable energy in Palau, advanced battery storage system would play bigger roles not only in improving energy efficiency of diesel generators but also in enabling more renewable energy by time shifting
- JFJCM team continues to identify and develop new projects, including renewable energy, WtE, green hydrogen, energy efficiency, clean transport, and various other interventions.

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Thank you.