

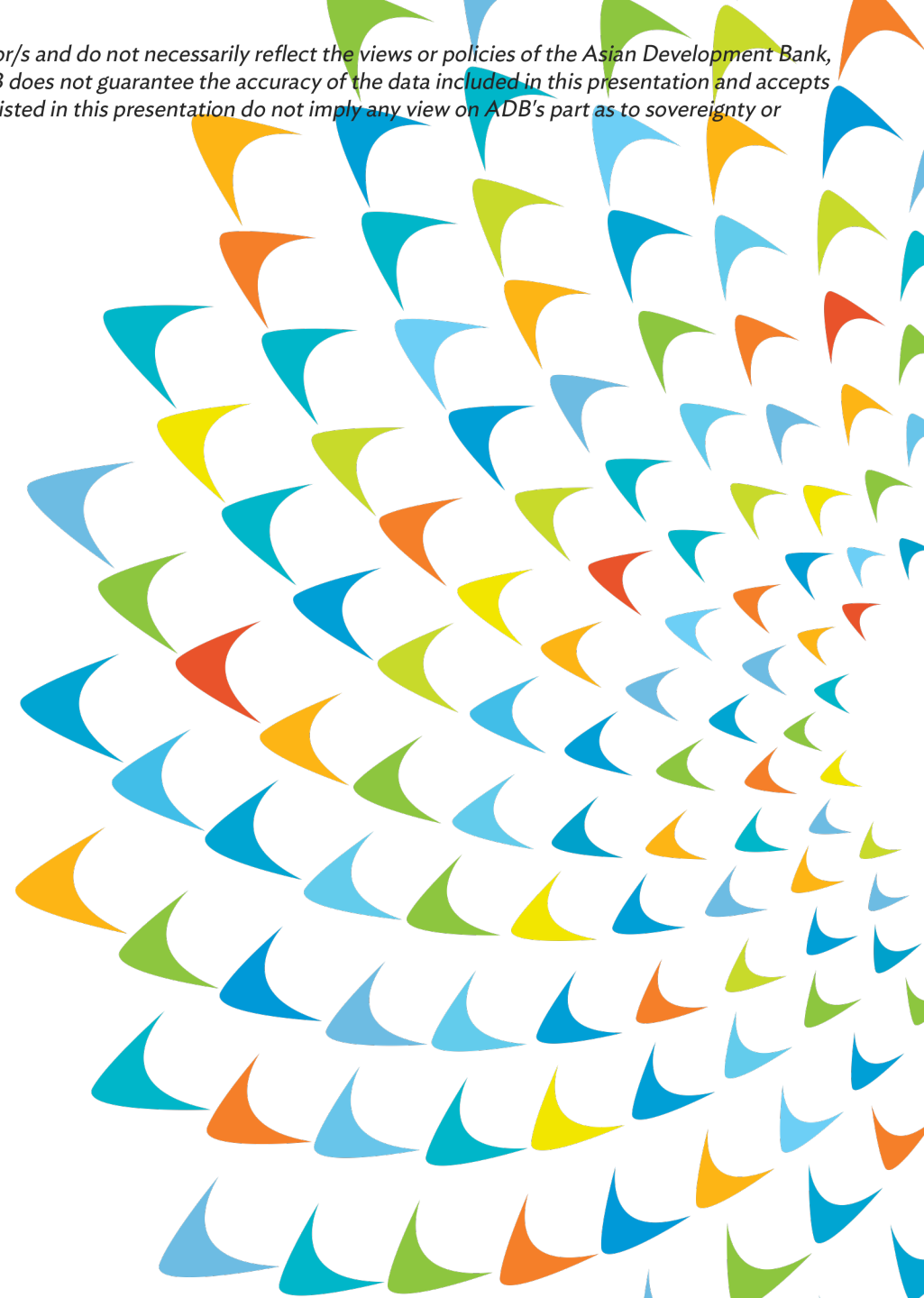


**JFJCM**

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# Japan Fund For The Joint Crediting Mechanism

Better Air Quality Conference  
November 16, 2023





# ADB's Carbon Market Program

Mobilizing carbon finance for incentivizing investments in low-carbon technologies

## Future Carbon Fund

- **\$115 million** Trust Fund to purchase post-2012 CERs.
- Commenced operations in 2009.
- Funding from 4 Sovereign and 2 private sector entities in Asia and Europe.
- Providing **\$53 million** worth of carbon finance to 33 GHG mitigation projects.
- Purchased **8.68 million** post-2012 CERs from projects hosted in 10 DMCs.
- Supports 1.1GW renewable energy projects.
- To be closed in 2023.

## JFJCM

- Japan Fund for the Joint Crediting Mechanism (JFJCM).
- Commenced in 2014 and provides grants for advanced low-carbon technologies in ADB-financed and administered projects utilizing the JCM initiated by Japan.
- **\$118 million** contributed by the Government of Japan (as of Jun 2023). Supports seven mitigation activities in **Bangladesh, Indonesia, Maldives, Mongolia** and **Palau** allocating \$52.68 million.
- Supports three TAs to prepare projects to be financed by the JFJCM and build capacity of DMCs, allocating \$4 million.

## Article 6 Support Facility

- Established in 2018.
- Providing technical, capacity building, and policy development support to enhance DMC's preparedness to participate in new carbon markets envisaged under the framework of Article 6.
- **\$6.2 million** facility funded by ADB and the Governments of Germany and Sweden.
- Supports **Bhutan, Georgia, Indonesia, Mongolia, Pakistan, Philippines, Thailand, and Viet Nam**.

## Technical Support Facility

- Established in 2006 and implemented through a series of successive TA projects to support DMCs in enhancing the financial viability of mitigation actions through carbon markets.
- Supported by a cumulative amount of \$13.20 million provided by the Governments of Austria, Finland, Japan, Luxembourg, ROK, Spain, and Switzerland.
- Currently implementing TA 6730, which provides participating DMCs with technical and capacity-building support for promoting life-cycle management of HFCs.
- Supports **Maldives, Mongolia, Philippines** and **Viet Nam**

## CACF

- **Climate Action Catalyst Fund (CACF) is a new carbon fund** to mobilize carbon finance to purchase carbon credits under Article 6 of the Paris Agreement
- **\$100million plus** to support DMCs in achieving NDC commitments cost effectively and raising ambition over time
- Will support a diverse range of **transformative actions** including projects, programs, and scaled-up activities such as sectoral and policy interventions
- ADB is in discussion with its development partners for mobilizing financing contribution for CACF
- Expected to commence the operation in **2023**

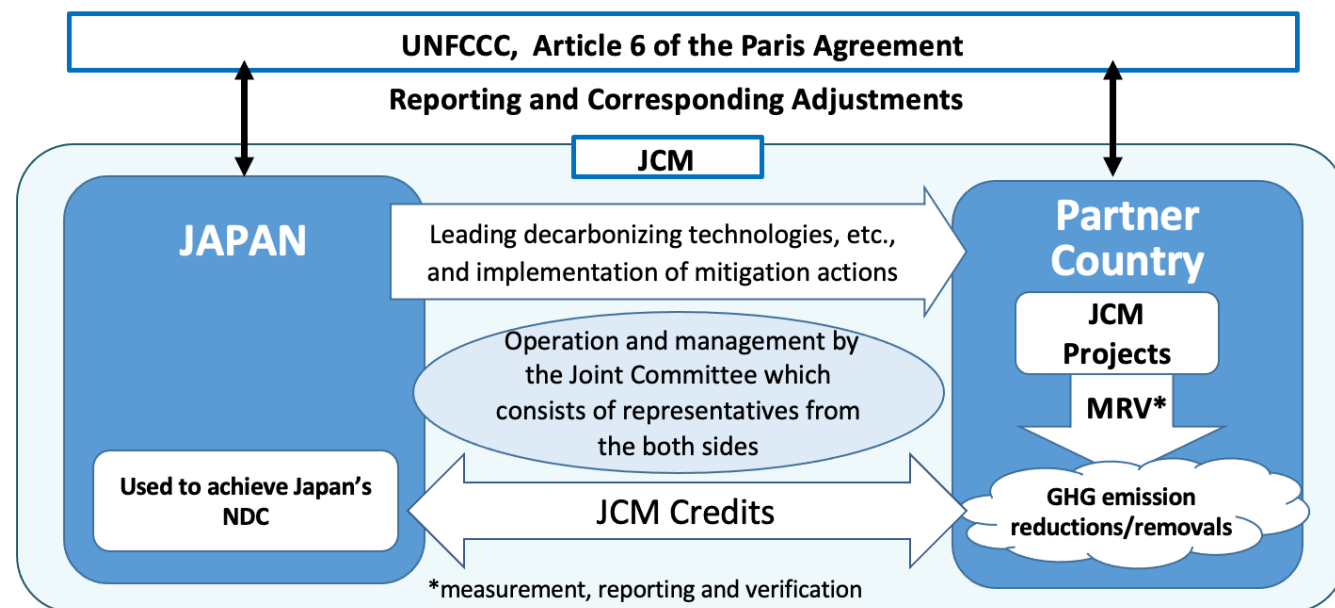


# Japan Fund for the Joint Crediting Mechanism

- Established in June 2014 as one of ADB's trust funds
- Contribution by Government of Japan: **\$118.77M** (2014-2023)
- 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

## \*Concept of the JCM

- **Project-based bilateral offset crediting mechanism** managed by Japan and partner countries
- Facilitates the diffusion of **low-carbon technologies** that lead to GHG emission reductions that are **measurable, reportable & verifiable**
- A forerunner to cooperative approaches under **Article 6 of the Paris Agreement**.
- Carbon credits from JCM projects will be shared among the countries and **used to achieve their emission reduction targets** while ensuring the avoidance of double counting through corresponding adjustment.





# JFJCM Eligibility

## Eligible Country

- All ADB developing member countries that **have signed bilateral agreements on the JCM** with the Government of Japan (18 out of 28 JCM partner countries).
- Azerbaijan, Bangladesh, Cambodia, Georgia, Indonesia, Kazakhstan, Kyrgyz Republic, Laos, Maldives, Mongolia, Myanmar, Palau, Papua New Guinea, Philippines, Sri Lanka, Thailand, Uzbekistan, and Viet Nam (as of Oct 2023).

## Eligible Project

- Investment project financed by ADB or ADB administered funds.
  - ADB technical assistance for developing JFJCM pipeline projects.
- \* Can be used for additional financing to ongoing ADB project.

## Eligible Technology

- **Advanced low carbon technologies** that reduce greenhouse gas (GHG) emission including CO<sub>2</sub> from energy source.
- The technologies must have a **proven implementation and operation record** of its technical effectiveness.



What can be done by JFJCM to help speed up making funds available for air quality improvement?

- **JFJCM requires social, environmental and economic **co-benefits** to be included in the project impacts**

Emphasis on air quality improvement as co-benefits in addition to GHG emission reductions would be effective to tap JFJCM funding

- **JFJCM is exploring new opportunities**

JFJCM is making efforts to identify new projects for JFJCM funding, by looking at;

- **High GWP gas** such as CH<sub>4</sub>, HFCs
- **Various sectors** not only conventional energy sector projects, expected to result in more opportunities for new projects in general, including sectors with high potential for air quality improvement, such as urban and agriculture.



**JFJCM**

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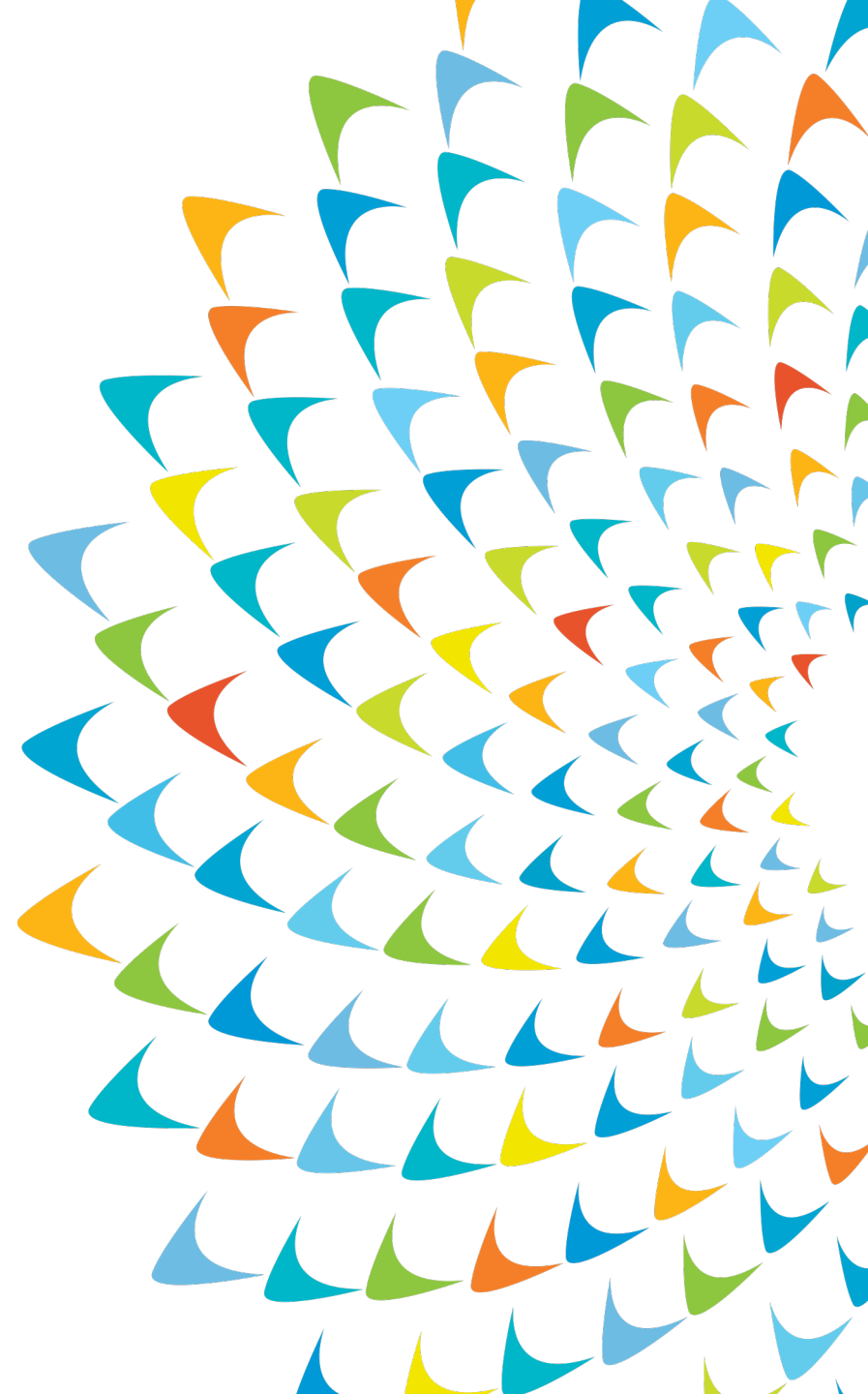
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**Thank you.**





# ADB's Climate Change Strategy

Strategy 2030 sets ADB's course on how best to respond to Asia and Pacific's changing needs

➔ Committed to mobilizing **\$100 billion in climate finance** cumulatively from 2019 to 2030; **75% of committed operations** to support climate change mitigation and adaptation by 2030 (October 2021)



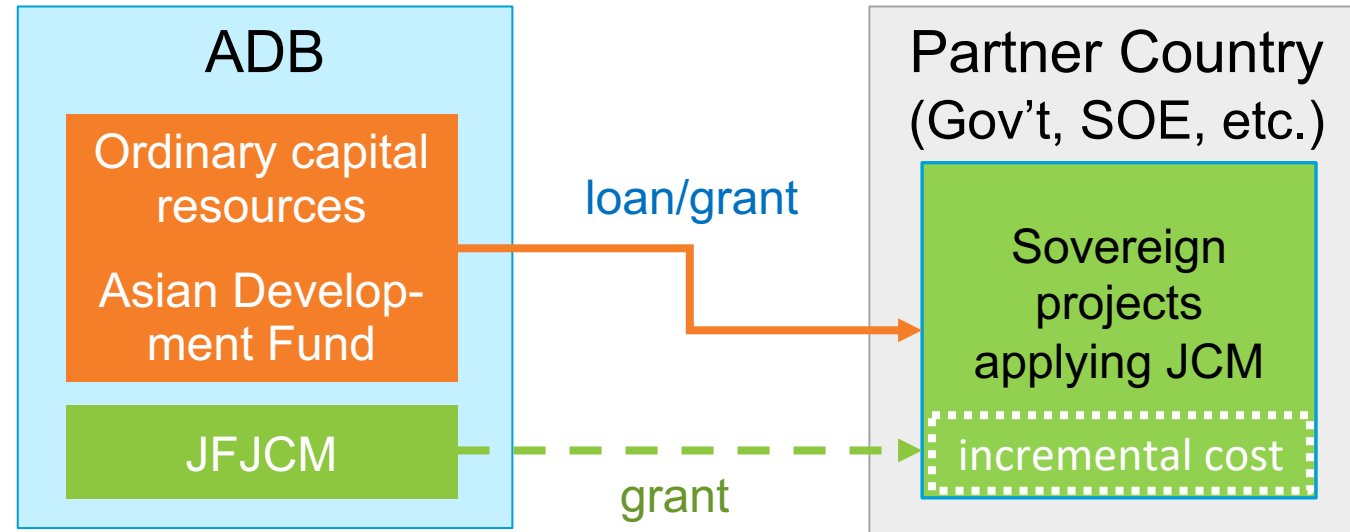
In October 2021, ADB's new **Energy Policy** was approved that promotes a low-carbon transition across Asia and the Pacific



# JFJCM Support Schemes

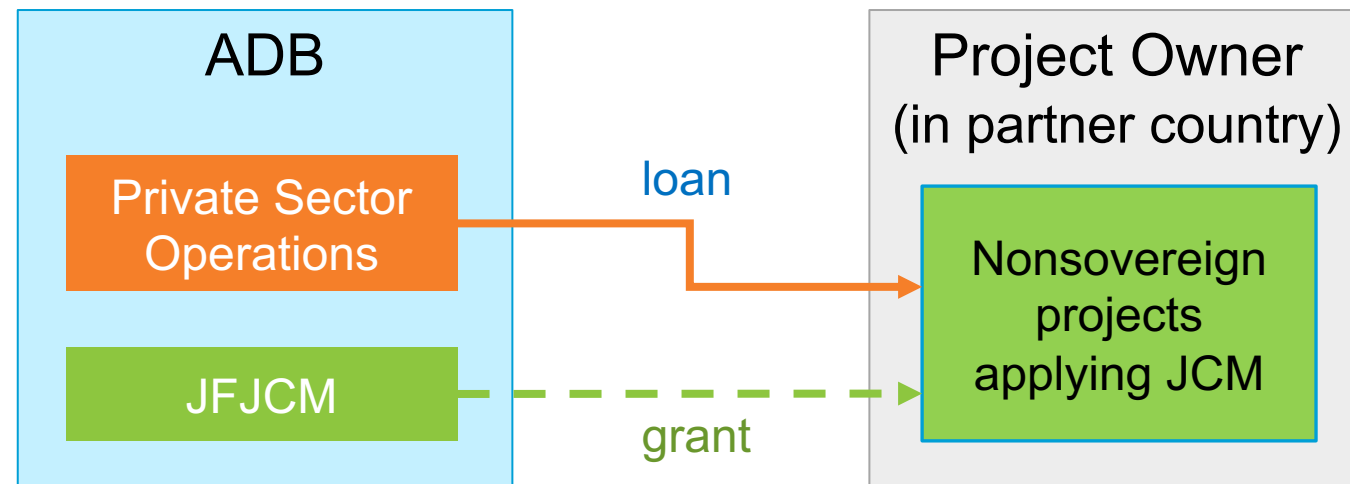
## For Sovereign Project

- JFJCM provides grant for **incremental cost** of advanced low-carbon technologies
- Maximum amount of grant:
  - 10% of total project cost (capped to \$10 million)
  - \$5 million if the project cost < \$50 million



## For Nonsovereign project

- On top of the ADB loan, JFJCM provides grant by milestones to support deployment of advanced low-carbon technologies
- Maximum amount of grant:  
10% of total project cost (capped to \$10 million)

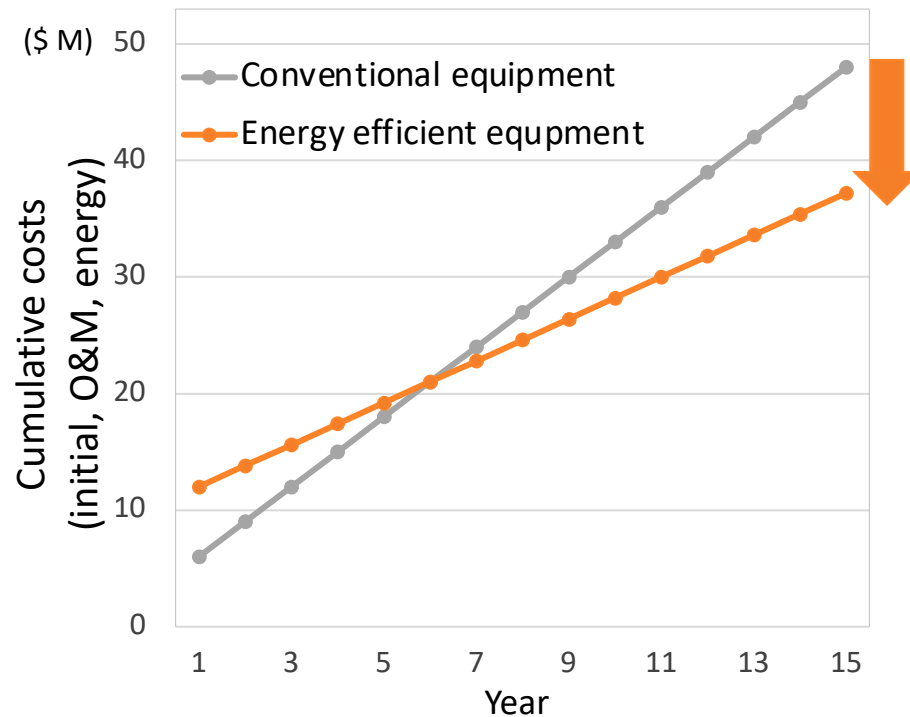






# Requirements for procurement (Sovereign)

- All procurement for the JFJCM subcomponent will be carried out in accordance with ADB's Procurement Policy (2017).
- **International competitive bidding** is required in principle.
- Technical specifications, evaluation and qualification criteria for procurement of the JFJCM subcomponents will be included in the JFJCM proposal. After approval, the procurement shall be in line with what is approved in the JFJCM proposal.
- For JFJCM subcomponents, price adjustment methodologies to account for the **life cycle cost (LCC)** shall be used in financial evaluation of the bids.



**LCC**  
Energy Efficient Equipment < Conventional Equipment



# Other Requirements of the JFJCM support

## ➤ Environment and Social Impact

- The project should benefit recipient DMCs through:
  - a reduction of environmental pollution, including air or water pollution, solid waste treatment, or conservation of natural resources; and/or
  - other social economic benefits, including increased job creation opportunities, better access to basic infrastructure, and gender equality.

## ➤ Cost effectiveness\*

- Cost of reducing 1tCO<sub>2</sub>e ≤ \$40

\* grant amount / (annual GHG emission reduction x project period)

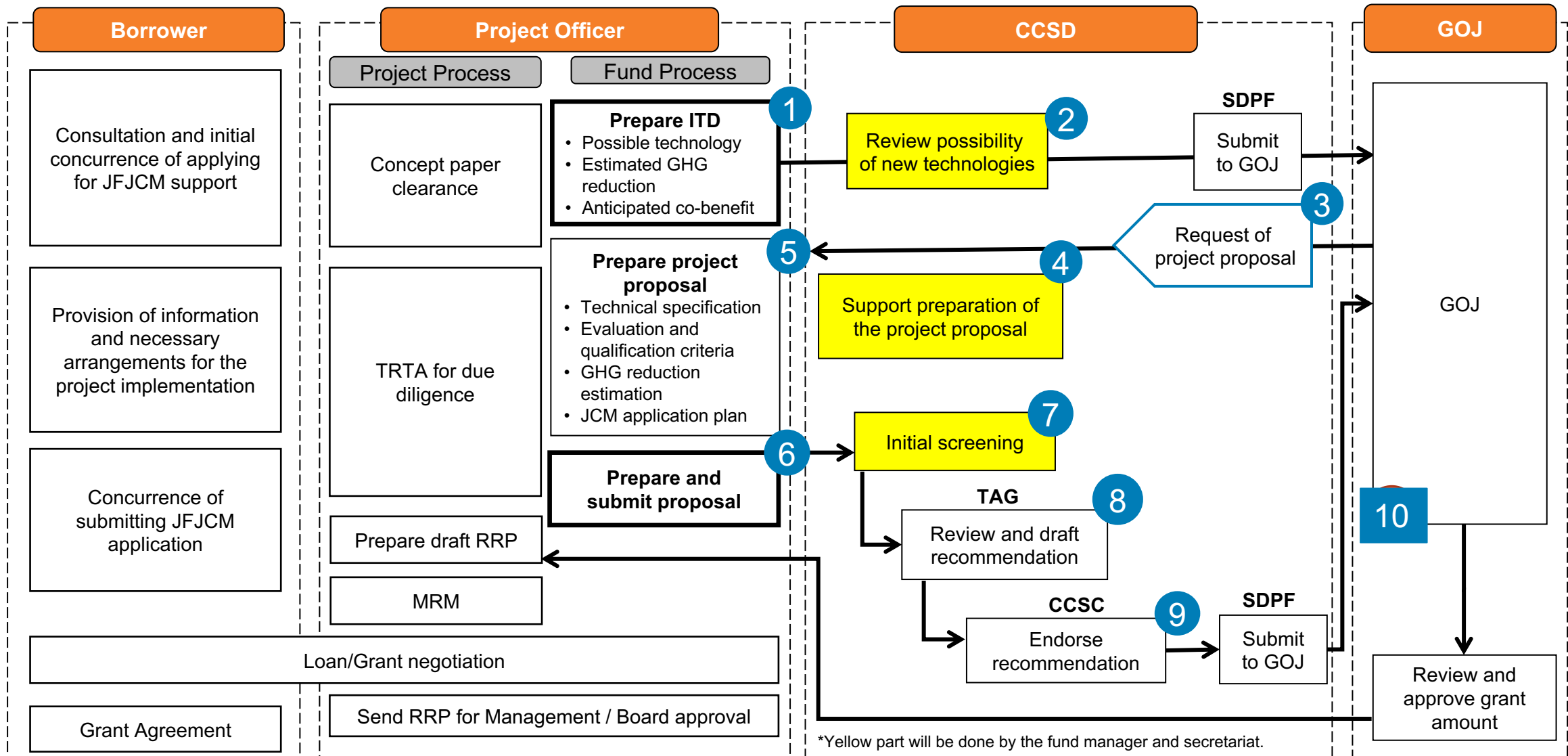
This sets a ceiling of the grant amount.

## ➤ Others

- The JFJCM subcomponents cannot apply for other international carbon market mechanisms.



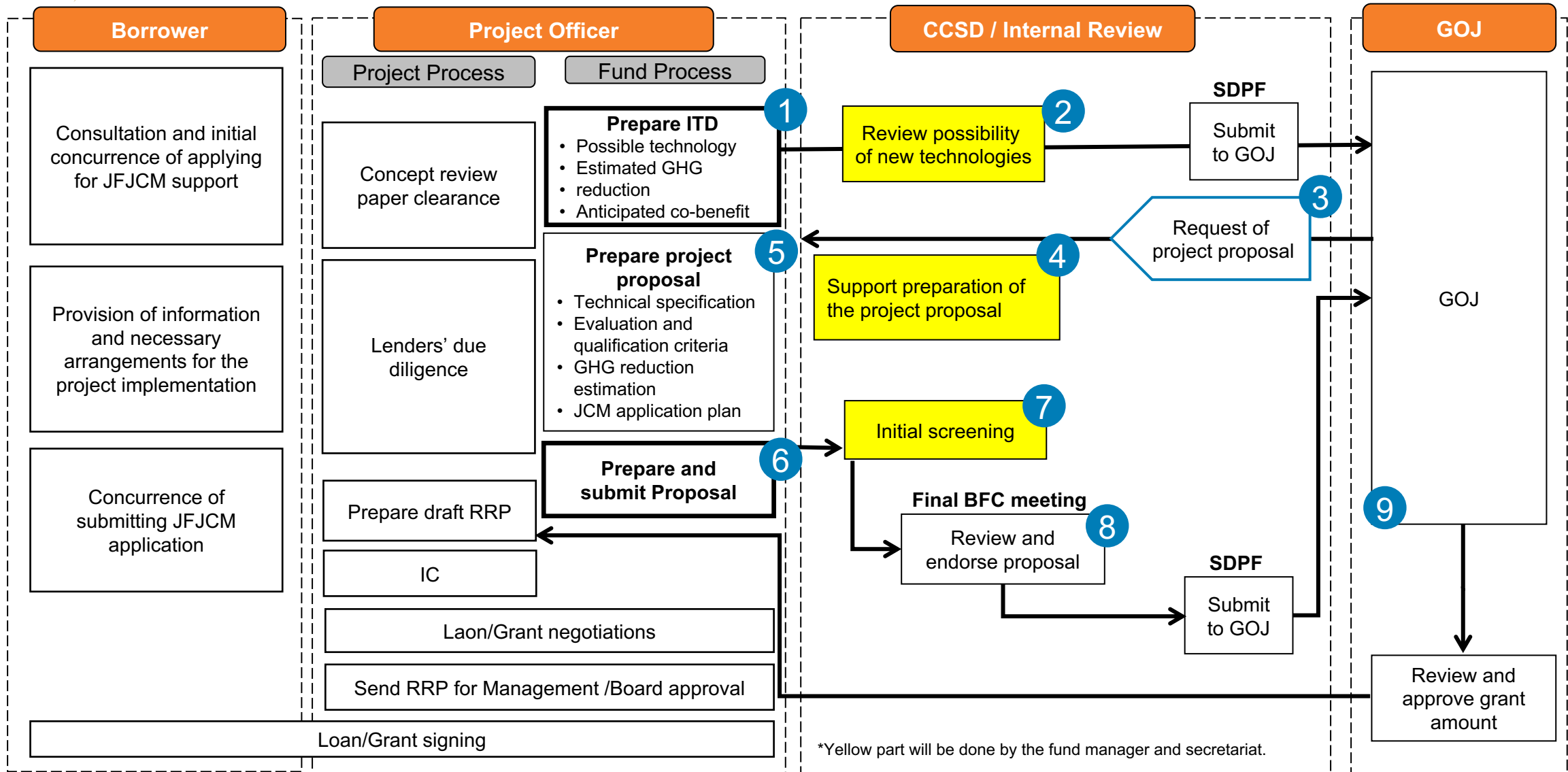
# JFJCM Application Process (Sovereign)



CCSC = Climate Change Steering Committee; GHG = greenhouse gas; GOJ = Government of Japan; ITD = Initial Title and Description; JCM = Joint Crediting Mechanism; MRM = management review meeting; RRP = report and recommendation of the President; SDCC = Sustainable Development and Climate Change Department; SDPF = Partner Funds Division, SDCC; TAG = Technical Advisory Group; TRTA = transaction technical assistance.



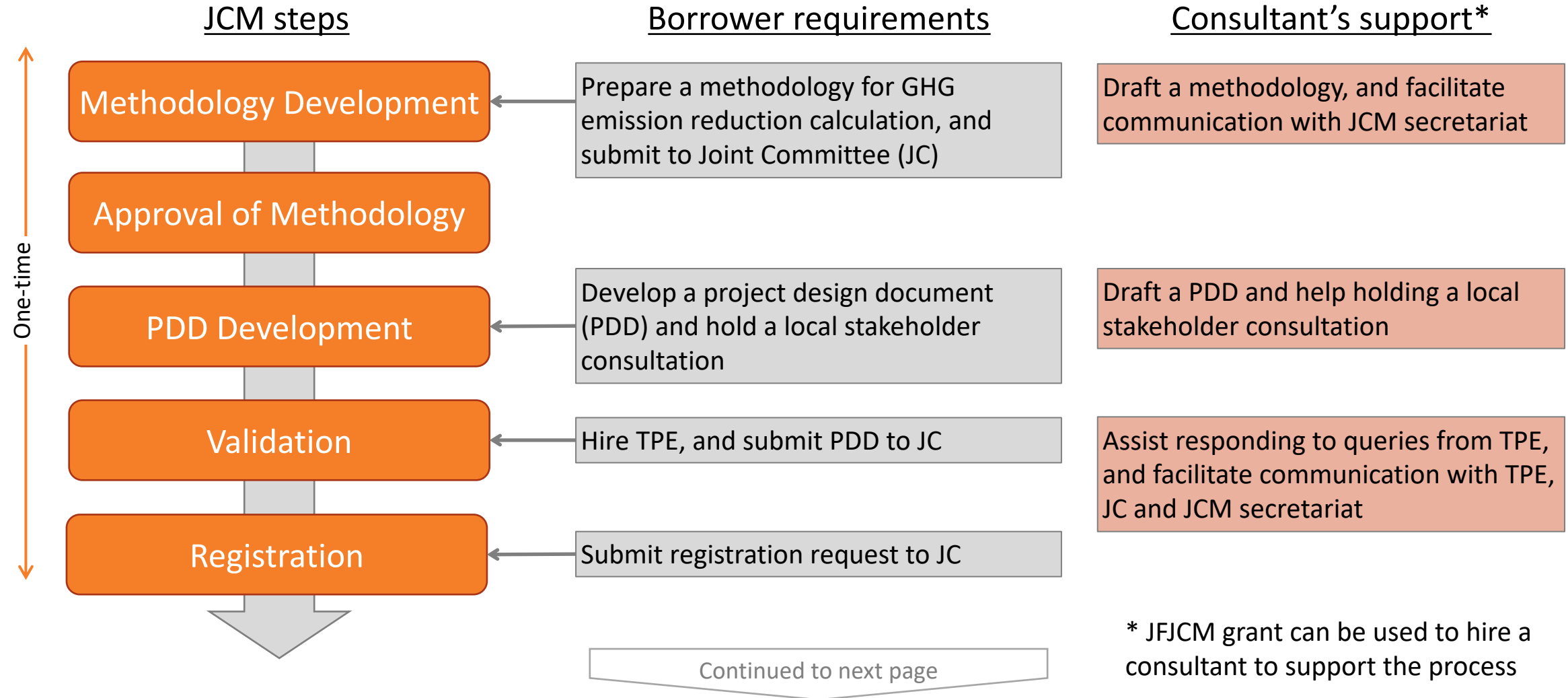
# JFJCM Application Process (Nonsovereign)



BFC = Blended Finance Committee; GHG = greenhouse gas; GOJ = Government of Japan; IC = investment committee; ITD = Initial Title and Description; JCM = Joint Crediting Mechanism; RRP = report and recommendation of the President; SDCC = Sustainable Development and Climate Change Department; SDPF = Partner Funds Division, SDCC.

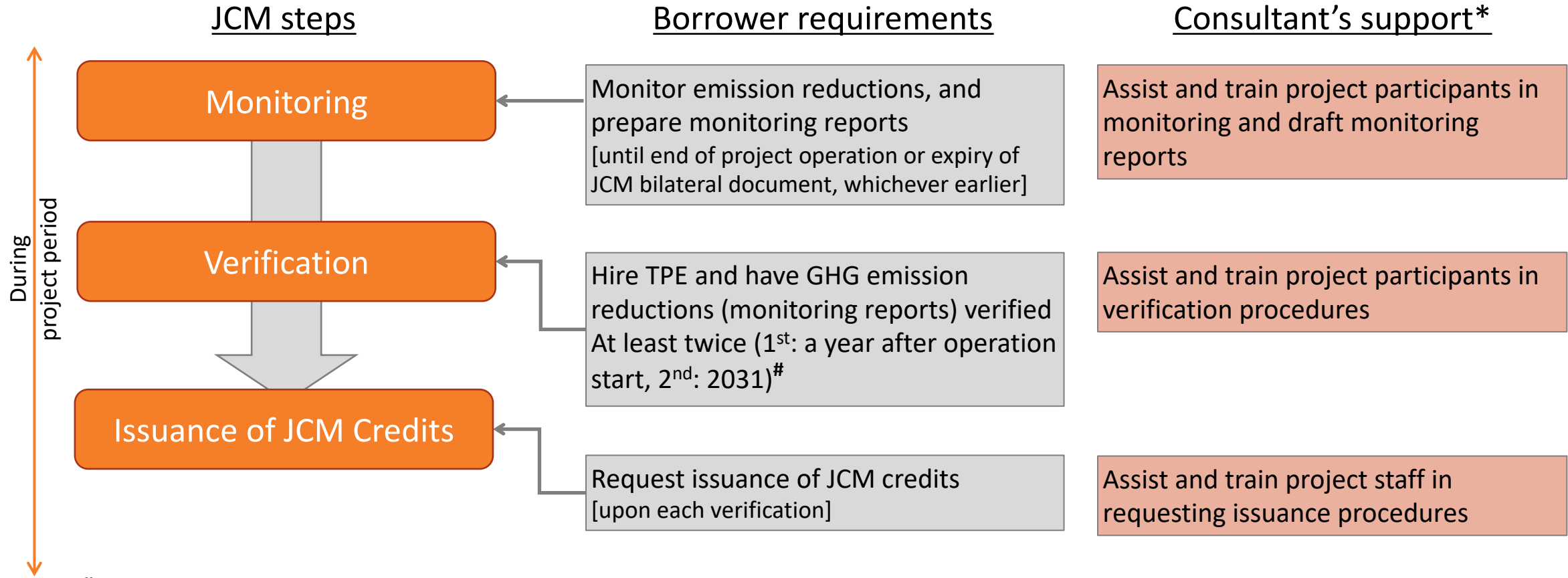


# JCM project cycle and requirements (1)





# JCM project cycle and requirements (2)



<sup>#</sup> Cost for hiring TPE will be borne by Borrower for the verification to be done if the timing is after the ADB project implementation period.

\* JFJCM grant can be used to hire a consultant to support the process



# Requirements for the JCM (after grant approval)

- After approval of the JFJCM funding, a borrower (grant recipient) is required to meet JCM application requirements as follows.

## JCM Requirements

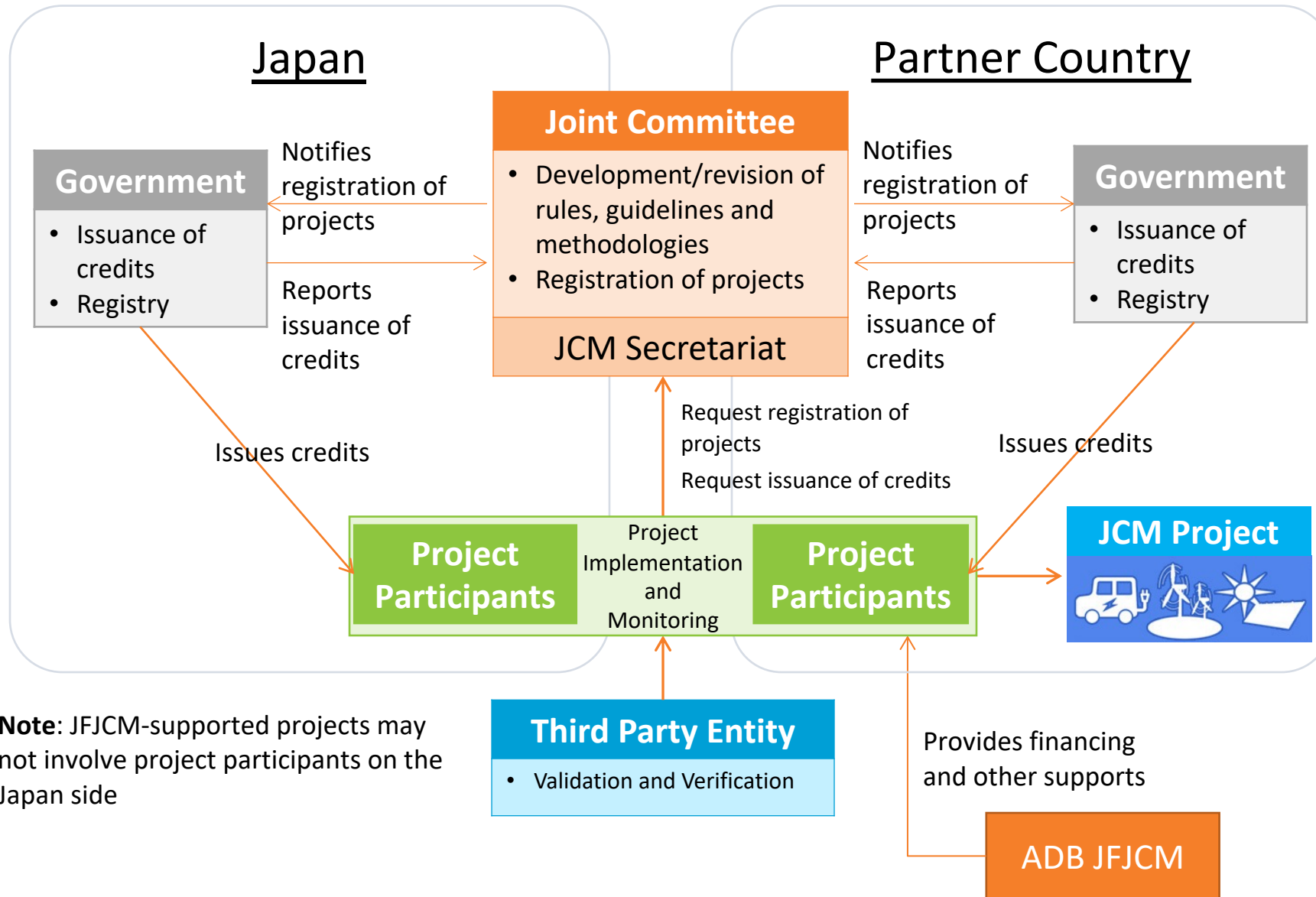
- Preparation and approval of **JCM Methodology**
- Preparation of **Project Design Documents (PDD)**
- **Validation** by Third Party Entities (TPEs), and **registration** of the project
- **Monitoring, reporting and verification** of GHG emission reduction
- **Issuance** of the JCM credits and delivery to government(s)

**Borrower needs to engage consultant  
by using the JFJCM grant  
JFJCM secretariat may help the process**

Reference: [Handbook for Developing JCM Projects](#)



# Roles of key entities in JCM projects







# Approved JFJCM Projects

#	Project	Country	JFJCM grant (\$ million)	ADB Approval	Technologies supported
1	Preparing Outer Islands for Sustainable Energy Development Project (POISED)	Maldives	5	Mar 2015	Advanced battery and energy management system (EMS)
2	Southwest Transmission Grid Expansion Project	Bangladesh	7	Jul 2018	Energy efficient transmission lines
3	Upscaling Renewable Energy Sector Project	Mongolia	6	Sep 2018	Solar PV with advanced battery system and EMS
4	Improving Access to Health Services for Disadvantaged Groups Investment Program	Mongolia	3.48	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	Aug 2020	Waste-to-energy plant (incineration)
6	Geothermal Power Generation Project (Phase 1)	Indonesia	10	Jun 2023	Geothermal power plant with advanced designs
7	Accelerating Sustainable System Development Using Renewable Energy Project (ASSURE)	Maldives	6.2	Sep 2023	Advanced flow battery system Ocean renewable energy pilot
8	Disaster Resilient Clean Energy Financing Project (DRCEF)	Palau	5	Expected in Q4 2023	Financial intermediation to support investment in low-carbon technologies
		<b>Total</b>	<b>52.68</b>		



# Case study 1: advanced micro-grid technology in Maldives

Project name	Preparing Outer Islands for Sustainable Energy Development Project (POISED)
JFJCM grant	\$5 million
Technology supported	Advanced battery energy storage system (BESS) and energy management system (EMS)
Description	<p>On top of 1.6 MW of solar PV installed under the POISED project, <b>the advanced BESS and EMS</b> are supported by JFJCM. The systems enable:</p> <ul style="list-style-type: none"><li>➤ Smoothing out the fluctuation of variable solar PV generation</li><li>➤ Optimizing diesel generator operation</li><li>➤ Integrating large amounts of renewable energy to the grid</li></ul> <p>The BESS and EMS have started operation since August 2021.</p>
Location	Addu, Maldives
Emission reductions	1.3 thousand tCO <sub>2</sub> /year (estimate)



BESS at the project site



Training local staff for EMS operation

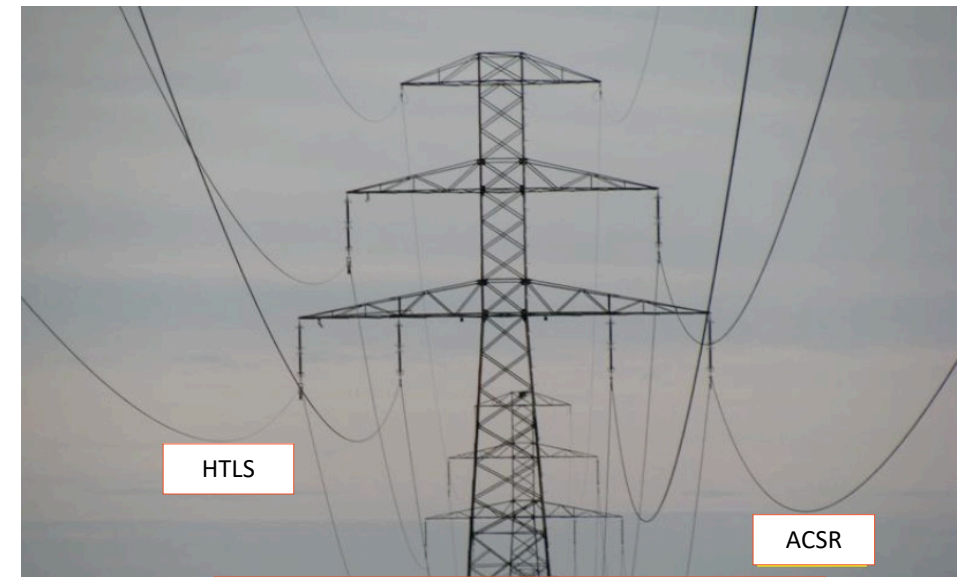
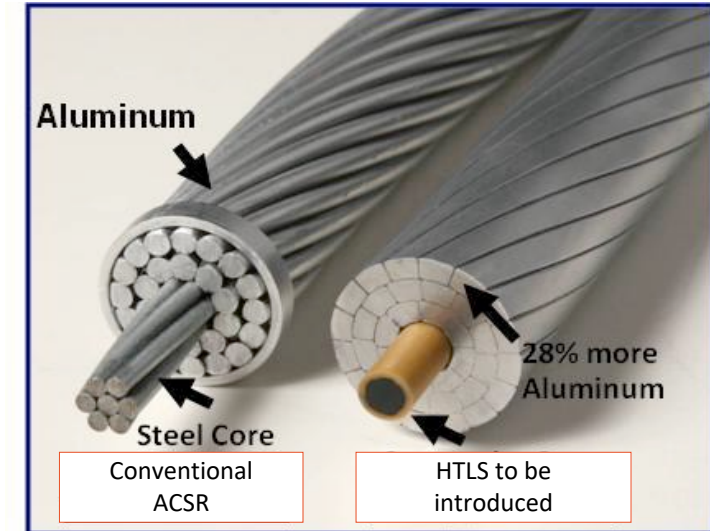


Solar PV at the project site



# Case study 2: Energy efficient transmission lines in Bangladesh

Project name	Southwest Transmission Grid Expansion Project
JFJCM grant	\$7 million
Technology supported	Energy efficient transmission lines
Description	Energy efficient transmission lines will increase high-voltage network capacity while reducing transmission losses and emissions including carbon dioxide. The key technology is <b>high-temperature low-sag (HTLS) conductors</b> . HTLS conductors have less sag at high temperatures and higher capacity compared to conventional aluminum conductor steel reinforced (ACSR) cables, which are currently widely used in Bangladesh. HTLS utilize cores made of steel alloys, composite-reinforced metal, or carbon fiber composite material.
Location	Between Gopalganj and Barisal, Bangladesh
Emission reductions	23.1 thousand tCO <sub>2</sub> /year (estimate)

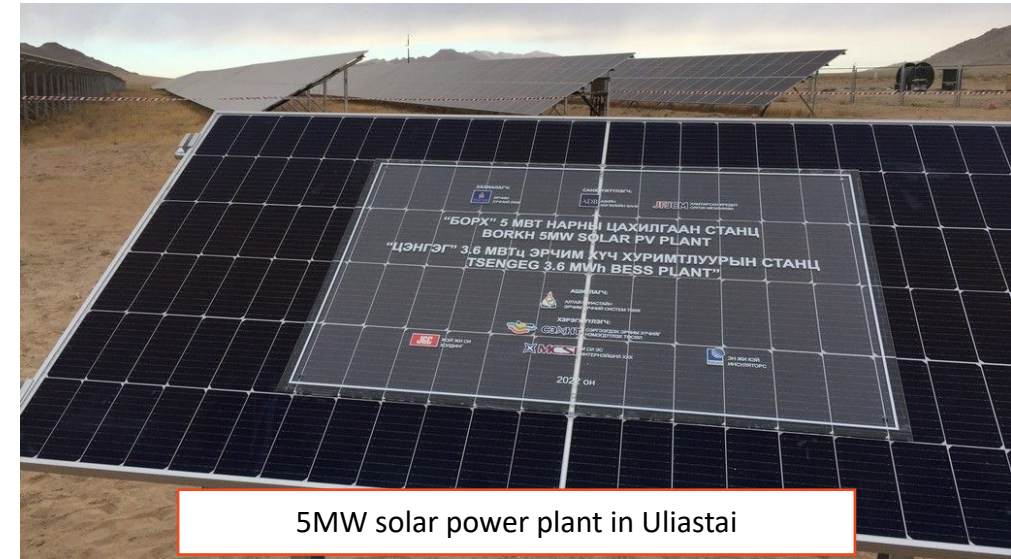


HTLS has lower sag compared to conventional ACSR



# Case study 3: Upscaling renewable energy in Mongolia

Project name	Upscaling Renewable Energy Sector Project
JFJCM grant	\$6 million
Technology supported	5MW solar PV system, advanced battery energy storage system (BESS) of 3.6 MWh and energy management system (EMS)
Description	This solar power plant with <b>advanced BESS and EMS</b> can supply as much locally produced renewable energy as possible to local consumers, reducing carbon intensive domestic and imported grid electricity, while strengthening the country's power self-sufficiency. This is <b>the very first utility scale battery system</b> in Mongolia combined with a grid connected renewable energy. The plant started operation in Nov 2022.
Location	Uliastai, Mongolia
Emission reductions	6.4 thousand tCO <sub>2</sub> /year (estimate)



5MW solar power plant in Uliastai



NAS (Sodium-Sulfur) battery introduced



# Case study 4: Green Hospital in Mongolia

Project name	Improving Access to Health Services for Disadvantaged Groups Investment Program
JFJCM grant	\$3.48 million
Technology supported	Energy efficient heating, ventilation and air-conditioning (HVAC) system, high insulation window, rooftop solar PV, and ground source heat pump (GSHP)
Description	A new annex building as expansion of the existing Khan Uul district hospital in Ulaanbaatar will be constructed with adoption of <b>advanced low carbon technologies including HVAC system, high insulation window and rooftop solar PV</b> . New construction of three family health centers is also planned with <b>GSHP</b> installation, which replace the heat supply from electric heaters powered by coal fired power plants.
Location	Ulaanbaatar, Mongolia
Emission reductions	2.9 thousand tCO <sub>2</sub> /year (estimate)



Project site for a family health center with GSHP



Test drilling for GSHP



# Case study 5: Waste to Energy in Maldives

Project name	Greater Male Waste to Energy Project
JFJCM grant	\$10 million
Technology supported	Waste to energy plant (incineration)
Description	The project will establish an integrated regional solid waste management system in Greater Male consisting of collection, transfer, treatment using <b>advanced waste-to-energy (WtE) technology</b> , disposal, recycling, and dumpsite closure and remediation. The WtE facility can process 500 tons/day of municipal solid waste, with up to 12 MW power generation. Installation of MSW incinerators avoids emissions of methane associated with disposed organic waste in a solid waste disposal site.
Location	Thilafushi, Maldives
Emission reductions	40.4 thousand tCO <sub>2</sub> e/year (estimate) *Average of emission reductions for 20 years



Original dump site



Planned WtE plant

Future



# Case study 6: Geothermal Energy in Indonesia

Project name	Geothermal Power Generation Project
JFJCM grant	\$10 million
Technology supported	(i) Anomaly predictive diagnosis using Internet of Things (IoT) and Artificial Intelligence (AI), (ii) steam turbine with advanced design, (iii) direct drive motors for cooling tower fans, (iv) hybrid type cooling tower fill, and (v) optical fiber monitoring for temperature distribution inside cooling tower
Description	PT Geo Dipa Energi (GDE), a state-owned geothermal company, will develop a single-flash geothermal power plant with 55 MW at the Patuha geothermal field (Patuha Unit-2). The project will introduce <a href="#">the first-of-its-kind technologies for large scale geothermal power plant in Indonesia</a> , which lead to improving plant efficiency, minimizing degradation of plant performance, and reducing unplanned shutdown periods of the geothermal power plant, and thereby increasing renewable energy penetration into the existing grid system.
Location	West Java, Indonesia
Emission reductions	273.8 thousand tCO <sub>2</sub> e/year (estimate) *Average of emission reductions for 20 years



Patuha project site



Geothermal steam pipes



# Case study 7: Advanced Flow BESS and Ocean Renewable Pilot

Project name	Accelerating Sustainable System Development Using Renewable Energy Project
JFJCM grant	\$6.2 million
Technology supported	(i) Advanced flow battery energy storage (BESS) (ii) Ocean renewable energy pilot
Description	(i) Flow BESS of 3 MWh each for two target outer islands together with advanced EMS will be introduced to enable further integration of solar power generation by the private sector. The flow BESS will be used for time-shifting to bring the renewable energy penetration to 40-60% in energy term.  (ii) Current and/or wave power generation with 100 kW capacity will be deployed on a pilot basis in selected outer islands.
Location	Several outer islands, Maldives
Emission reductions	(i) 4.5 thousand tCO <sub>2</sub> e/year (estimate) (ii) 211 tCO <sub>2</sub> e/year (estimate) *Average of emission reductions for 20 years