

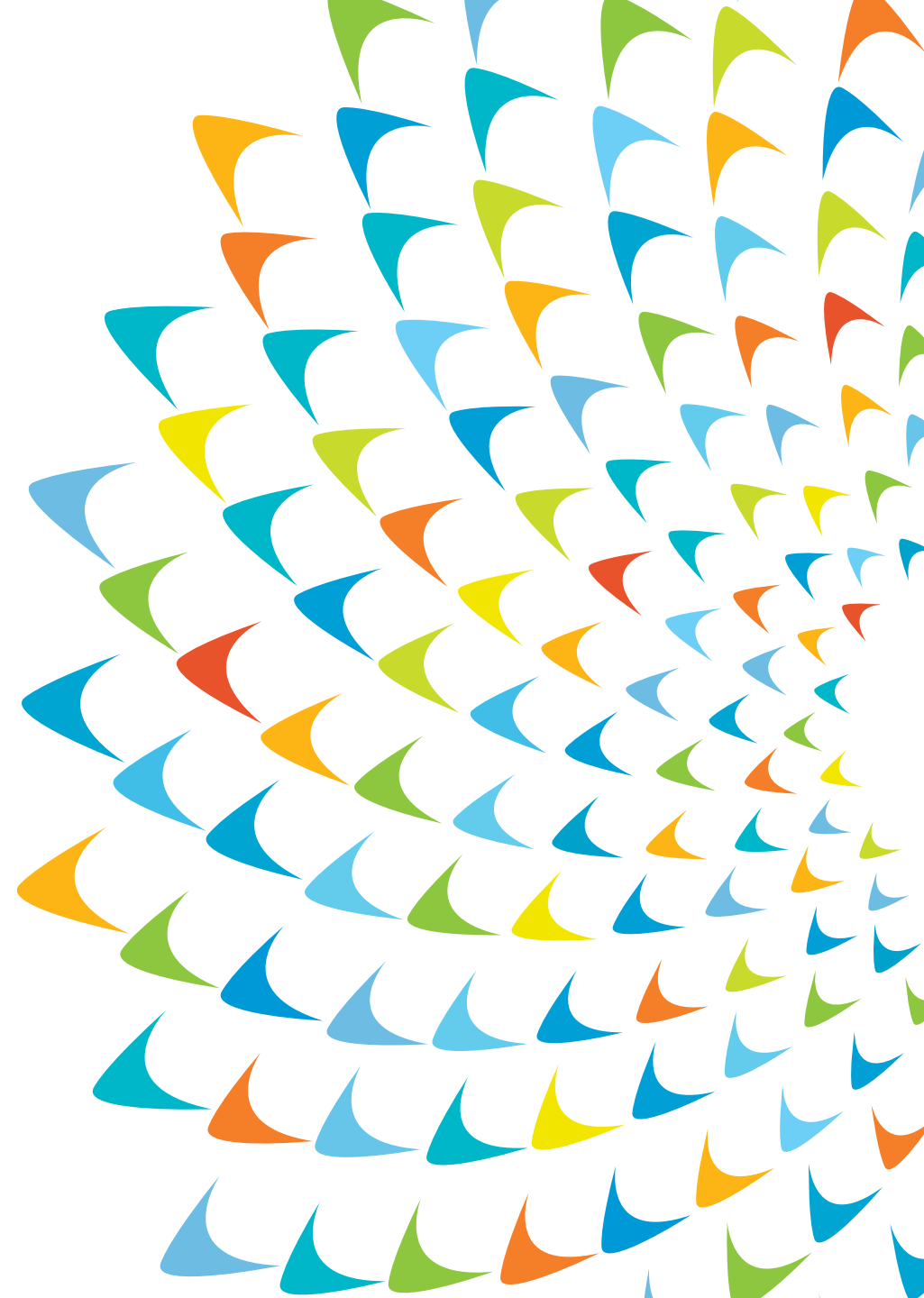


**JFJCM**

# Japan Fund for the Joint Crediting Mechanism

Webinar on the JCM Implementation for Sri Lanka  
- Contribution to GHG Emission Reductions in Sri Lanka  
through the JCM -

16 February 2024





# ADB's Climate Change Strategy

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



Addressing remaining poverty and reducing inequalities



Accelerating progress in gender equality



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



Making cities more livable



Promoting rural development and food security



Strengthening governance and institutional capacity



Fostering regional cooperation and integration

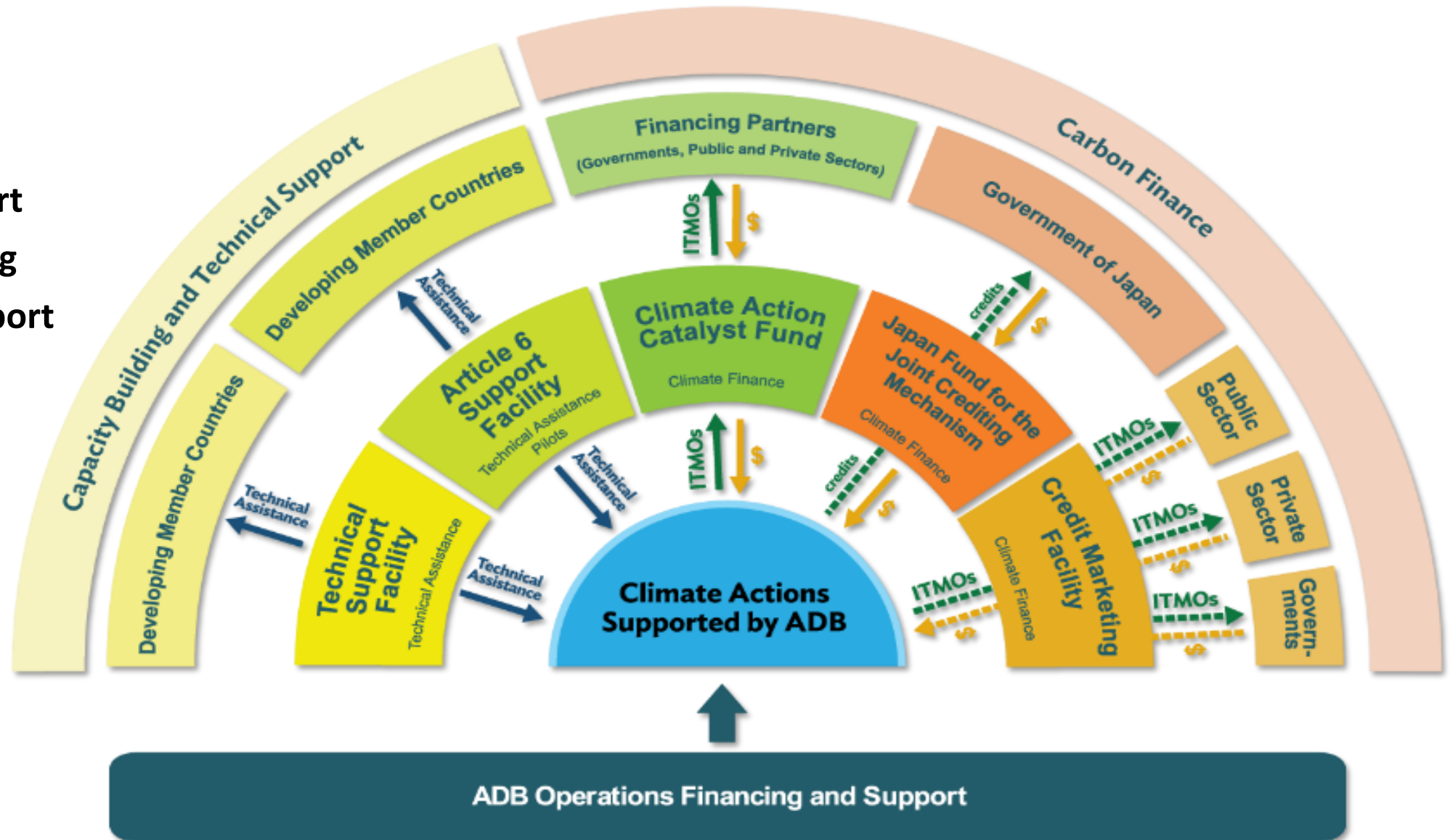
➔ Committed to mobilizing **\$100 billion in climate finance** cumulatively from 2019 to 2030; **75% of committed operations** to support climate change mitigation and adaptation by 2030 (October 2021)

➔ Updated ADB's Capital Adequacy Framework (CAF) to expand the bank's annual new commitments capacity to more than \$36 billion to unlock \$100 billion in new funding capacity over the next decade (September 2023)

# ADB's Carbon Market Program

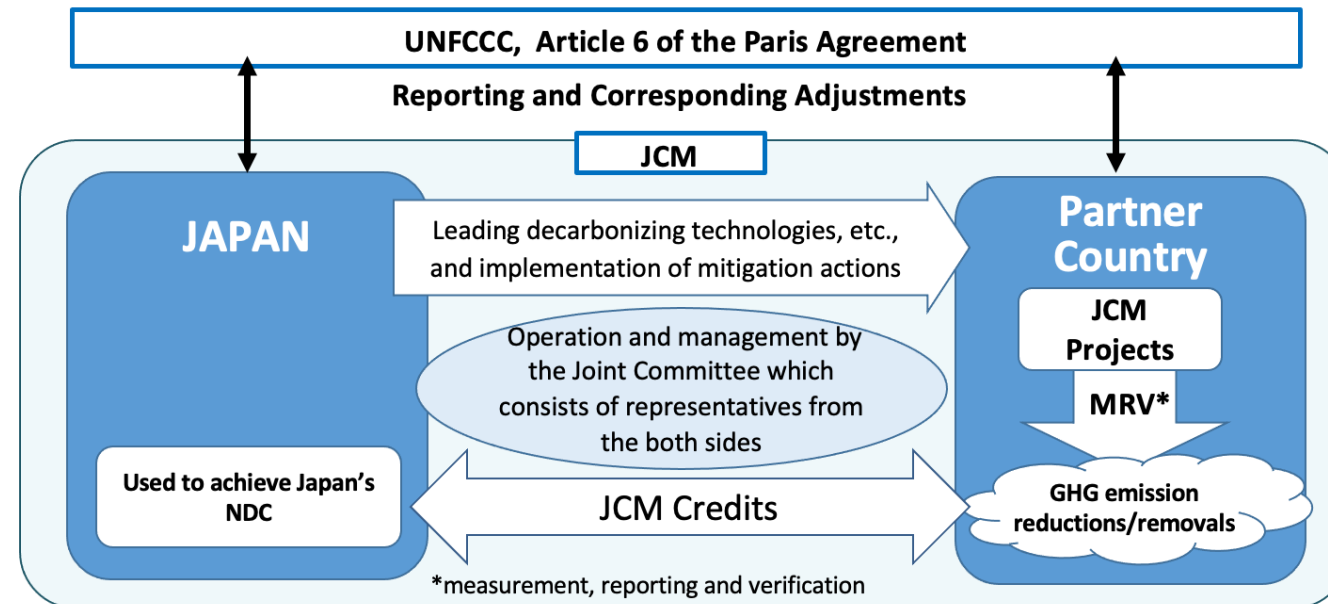
Mobilizing carbon finance for incentivizing investments in low-carbon technologies

- Carbon finance
- Technical support
- Capacity building
- Knowledge support



# Japan Fund for the Joint Crediting Mechanism (JFJCM)

- Established in June 2014 as one of ADB's trust funds
- Contribution by the Government of Japan: **\$118.77M** (2014-2023)
- Provides **financial incentives (grant)** for the adoption of **advanced low-carbon technologies** in **ADB-financed projects**
- JFJCM is one of financing programs to help develop and implement projects under the **Joint Crediting Mechanism (JCM)**, in accordance with **Article 6 of the Paris Agreement**



## 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 Jan 2024).

## 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.

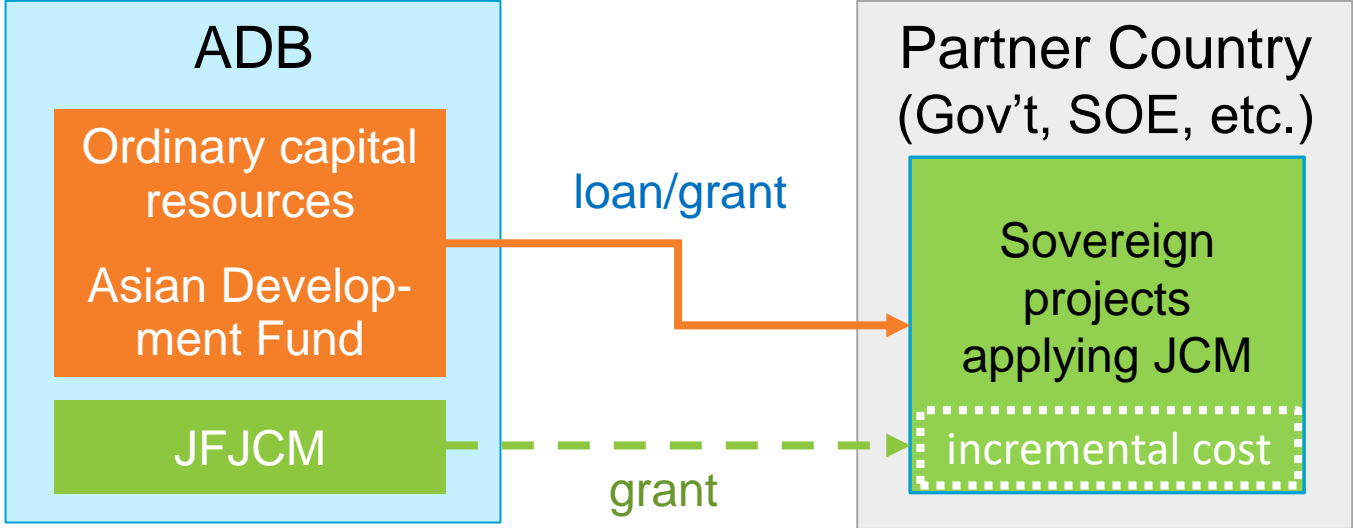
## Eligible Technology

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

# JFJCM Support Schemes

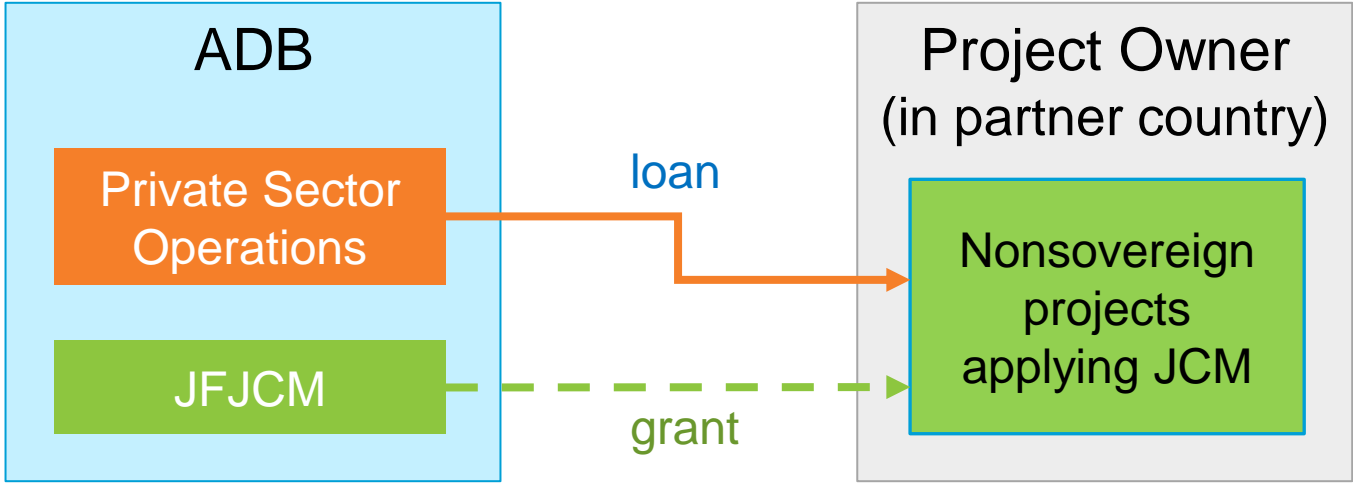
## For Sovereign Project

- JFJCM provides grant for **incremental cost** of advanced low-carbon technologies
- Maximum amount of grant:
  - i. 10% of total project cost (capped to \$10 million)
  - ii. \$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 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

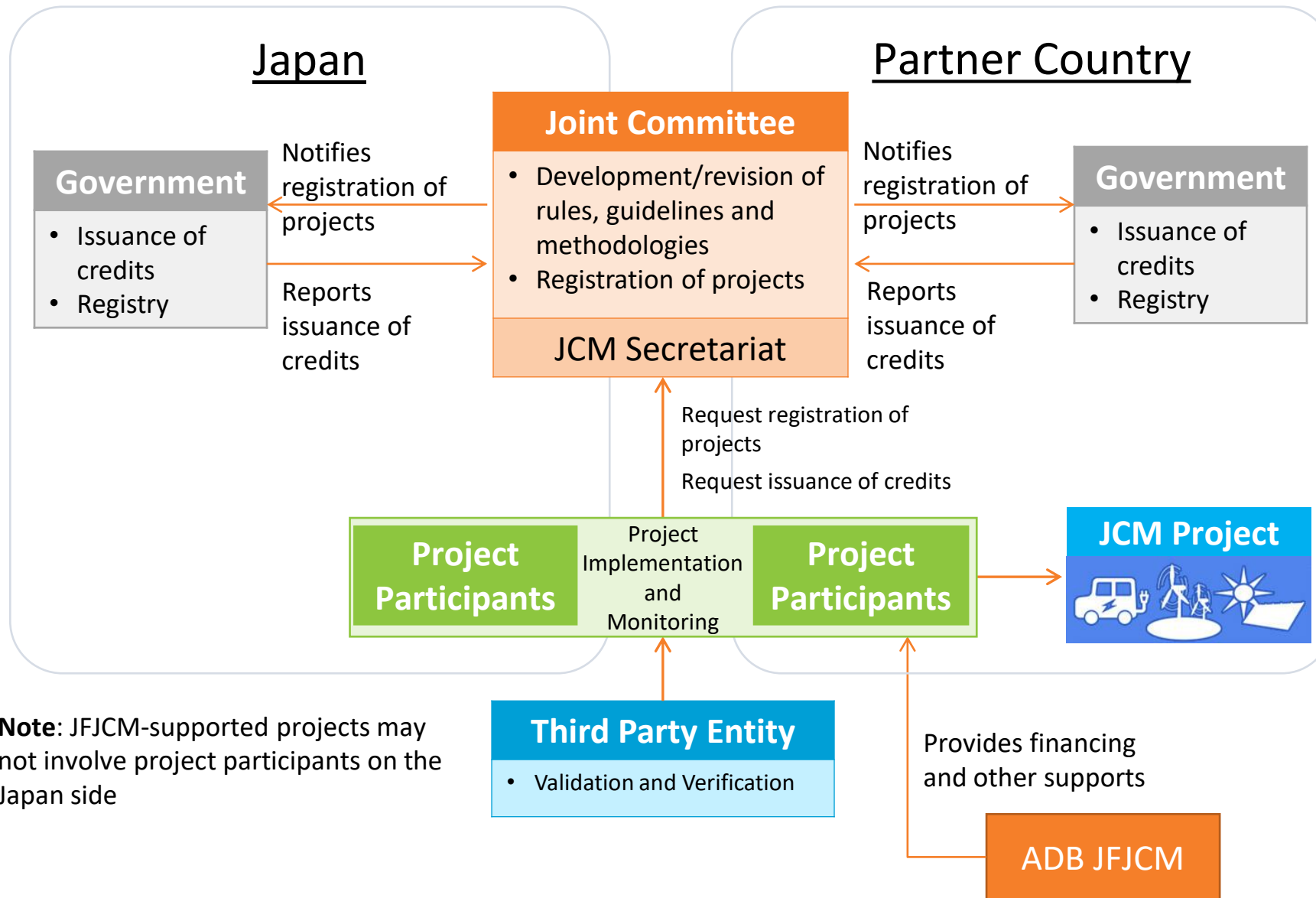
- Preparation and approval of **JCM Methodology**
- Preparation of **Project Design Documents (PDD)**
- **Validation** by Third Party Entities (TPEs), and **registration** of the project
- **Monitoring, reporting and verification** of GHG emission reduction
- **Issuance** of the JCM credits and delivery 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-funded 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	Dec 2023	Financial intermediation to support investment in low-carbon technologies
		<b>Total</b>	<b>52.68</b>		

## Sovereign Projects

- Project owners (= grant recipients) are usually public sector entities (governments, SOEs, etc)
- Procurement is made through a competitive bidding process
- Projects are discussed periodically between the Government and ADB
- For private sector entities:
  - Participate as a contractor or sub-contractor (EPC, technology provider, etc)
  - Participate as a consultant (individual/firm)

## Nonsovereign Projects

- Project owners (= grant recipients) are usually private sector entities
- The first step is to discuss ADB's loan with the Private Sector Operations Department of ADB



**JFJCM**

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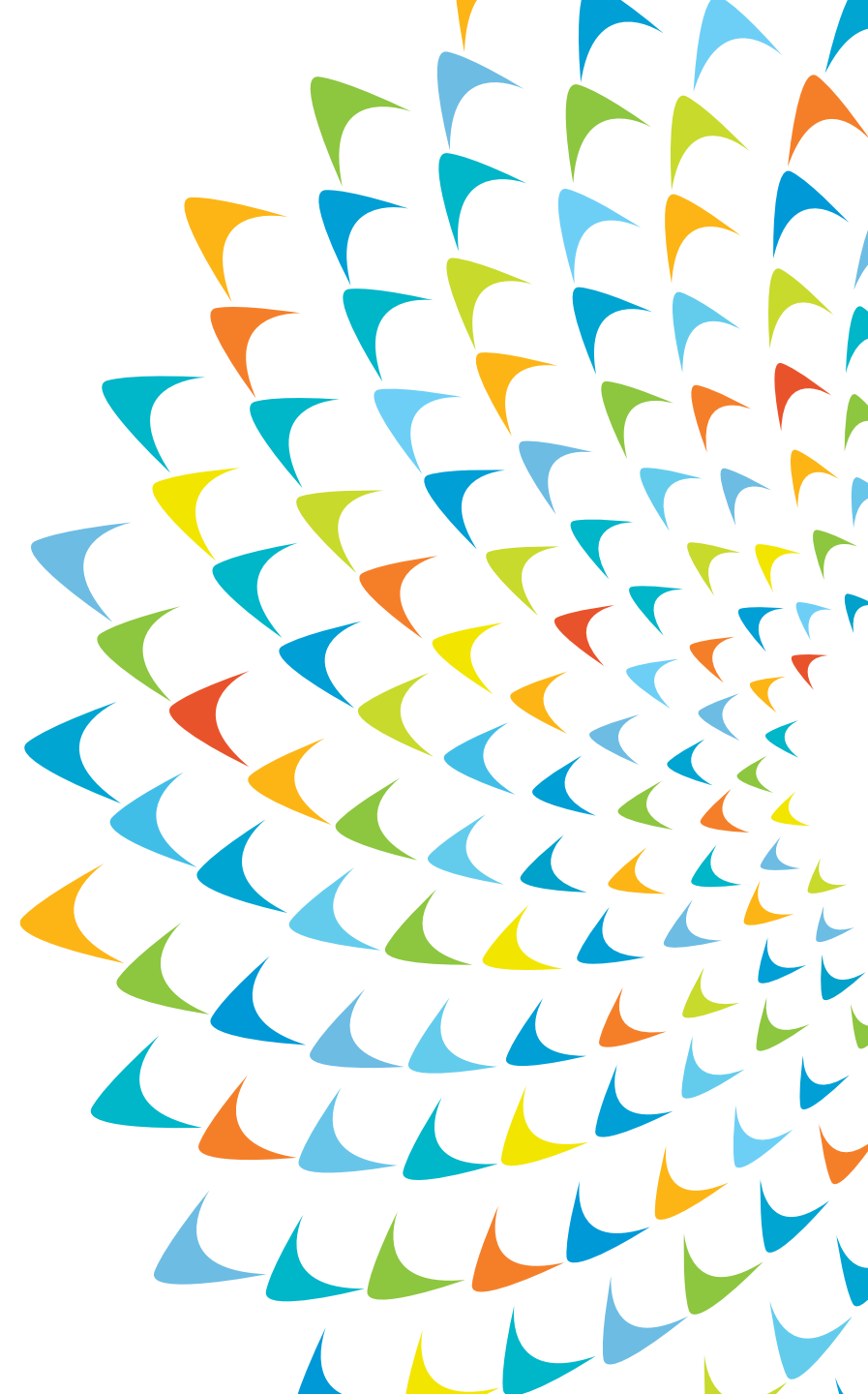
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**Thank you.**





# 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 2022:

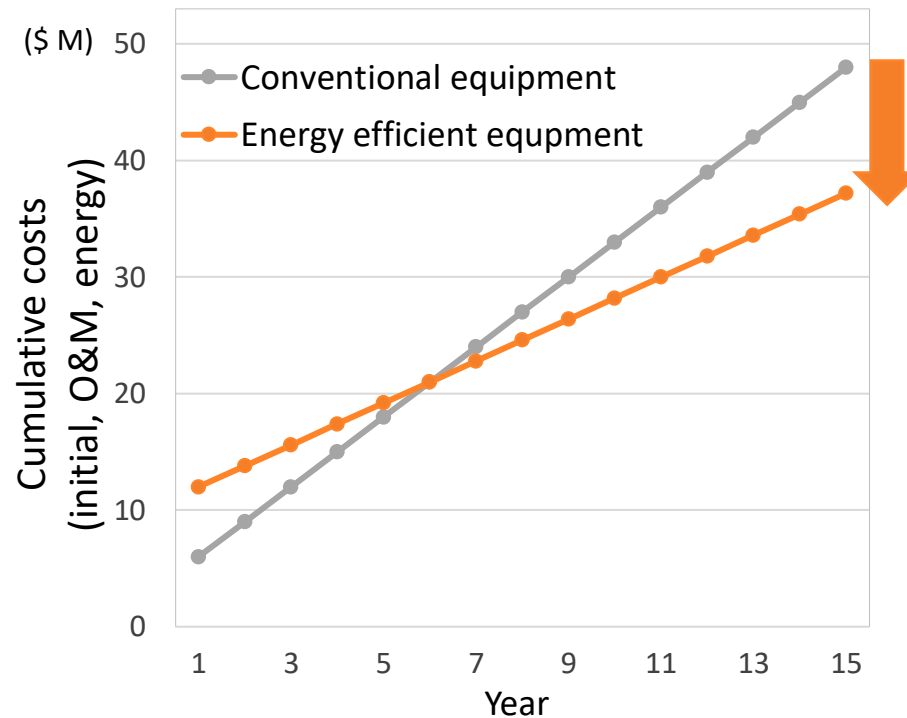
(\$ million)	Total ADB
<b>Total ADB Operations*</b>	<b>20,473</b>
<b>Sovereign</b>	<b>16,349</b>
Loan	15,389
Guarantee	19
Grants	940
<b>Nonsovereign</b>	<b>1,131</b>
Loan	979
Equity Investment	147
Guarantee	5
<b>Others including Technical Assistance</b>	<b>2,993</b>

\* Does not include co-financing including trust funds  
Source: ADB Annual Report 2022.



# 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



# JFJCM support for nonsovereign investment projects

- The grant will be documented in a grant agreement between ADB and the borrower (as grant recipient).
- JFJCM can be used to finance project costs in relation to planning, design, financing, construction, commissioning and completion of projects that deploy advanced low carbon technologies for nonsovereign investment projects, in accordance with ADB's nonsovereign lending policies and procedures.
- The grant amount will be committed and disbursed in USD, regardless of the currency of the ADB loan.
- PSOD and the fund secretariat, in consultation with clients, will prepare a grant disbursement schedule with milestones. For example:
  1. achievement of critical phases during construction of the project;
  2. completion of commissioning of the project;
  3. the first JCM credit issuance; and
  4. continued operation of the project for three years after the first JCM credit issuance.
- PSOD, with support from the fund secretariat, will supervise the JFJCM-supported projects once the grant is approved by the GoJ, including the implementation of the JCM Requirements (e.g. monitoring and reporting of GHG emission reductions to ADB at least once a year).
- The grant will be conditional, and may become repayable upon the recipient's noncompliance with the JCM Requirements.



# 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)

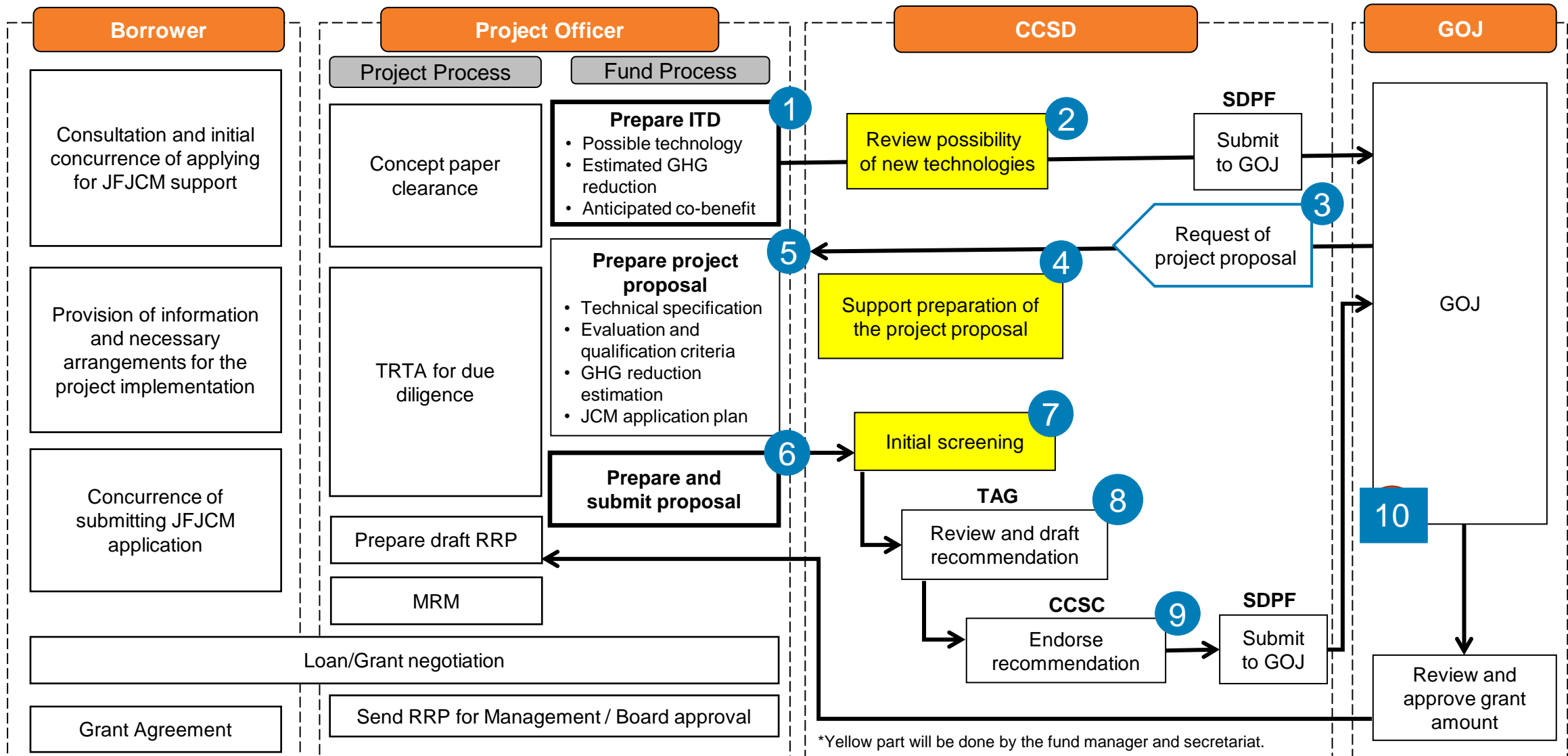
This sets a ceiling of the grant amount.

## ➤ Others

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



# JFJCM Application Process (Sovereign)

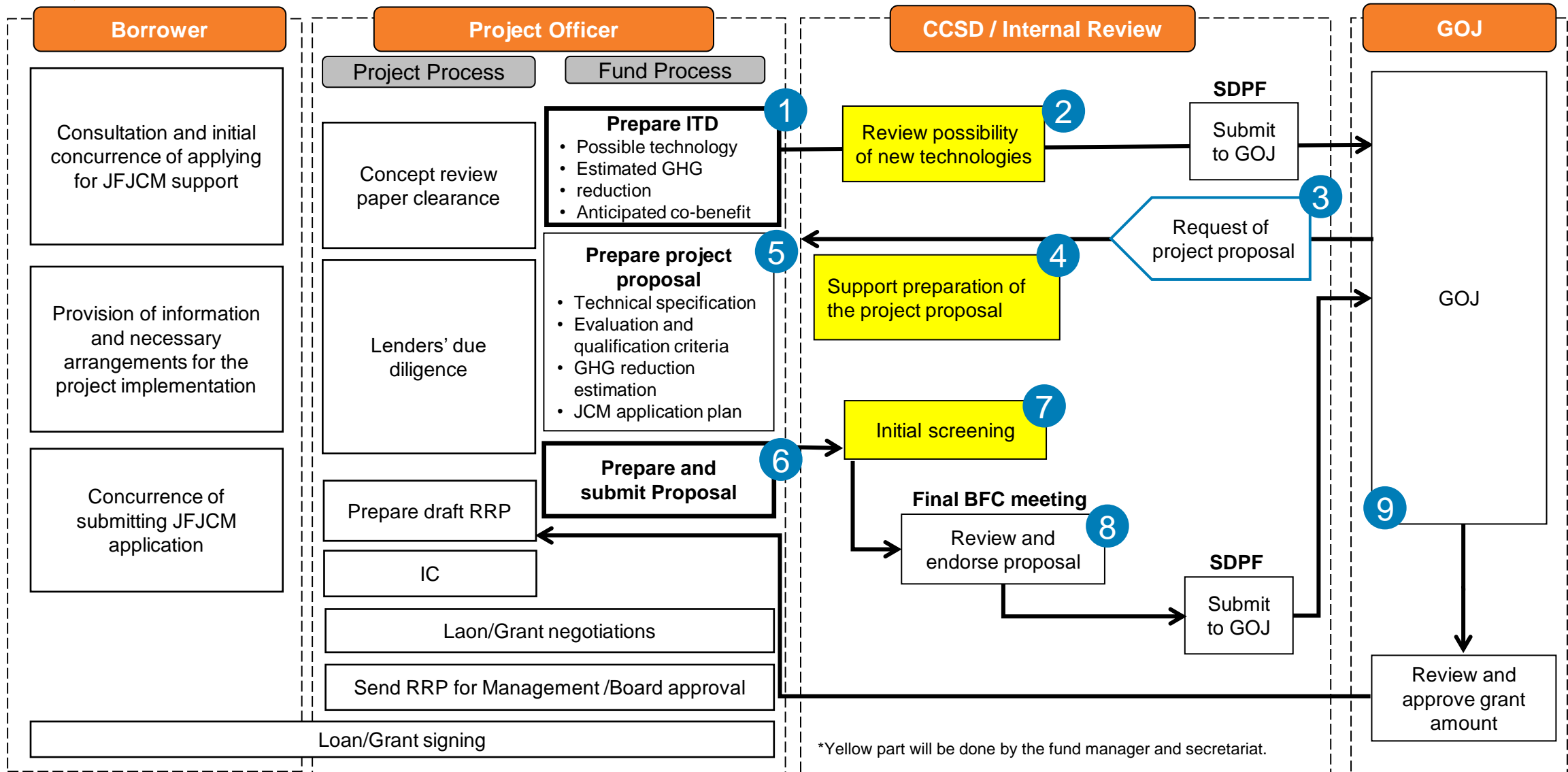


CCSC = Climate Change Steering Committee; GHG = greenhouse gas; GOJ = Government of Japan; ITD = Initial Title and Description; JCM = Joint Crediting Mechanism; MRM = management review meeting; RRP = report and recommendation of the President; SDCC = Sustainable Development and Climate Change Department;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





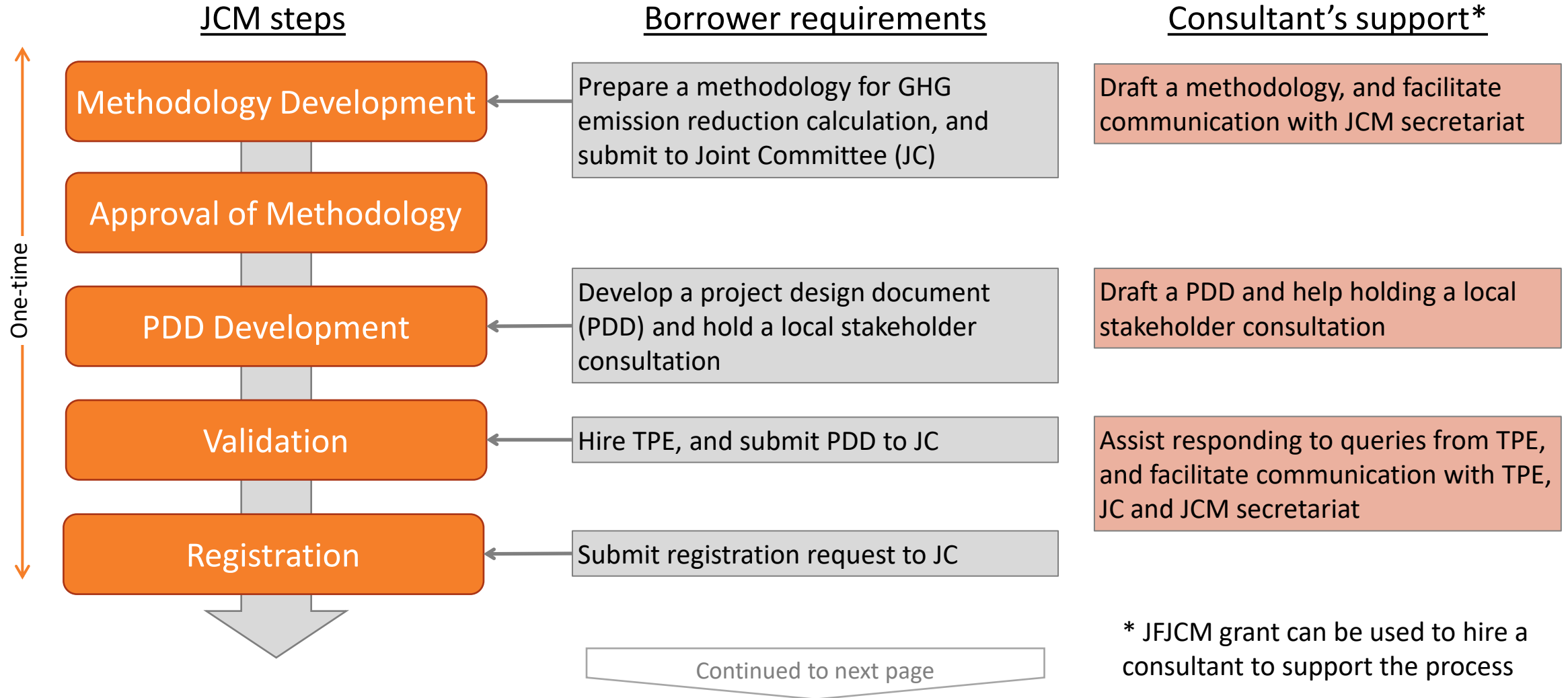
# JFJCM Application Process (Nonsovereign)



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.

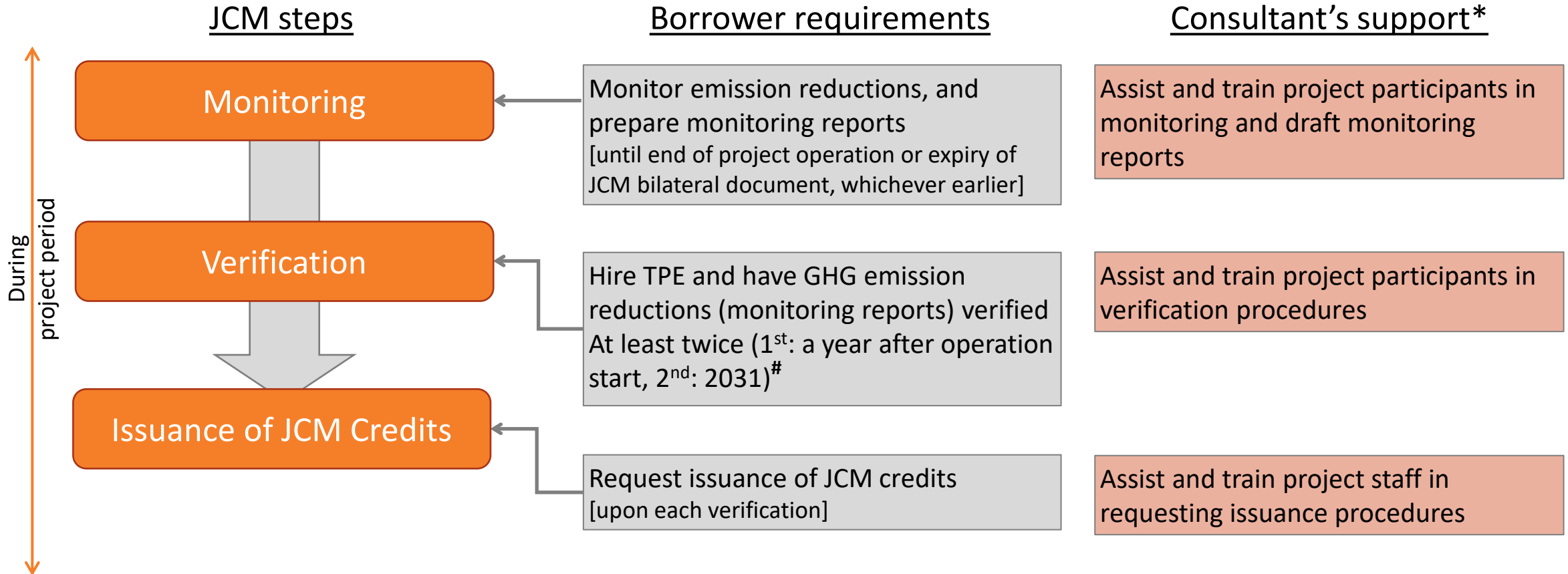


# JCM project cycle and requirements (1)





# 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



# 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

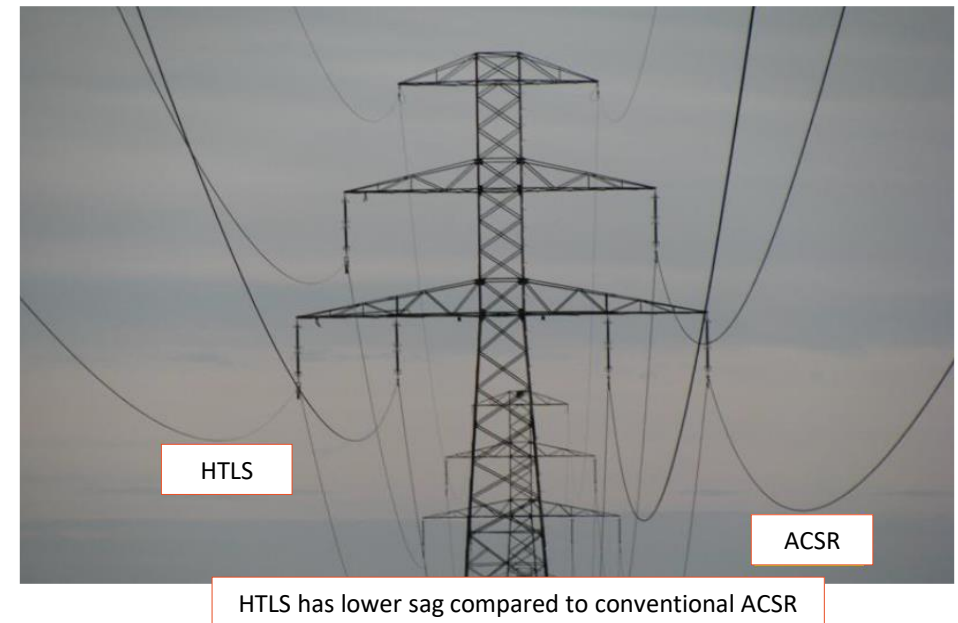
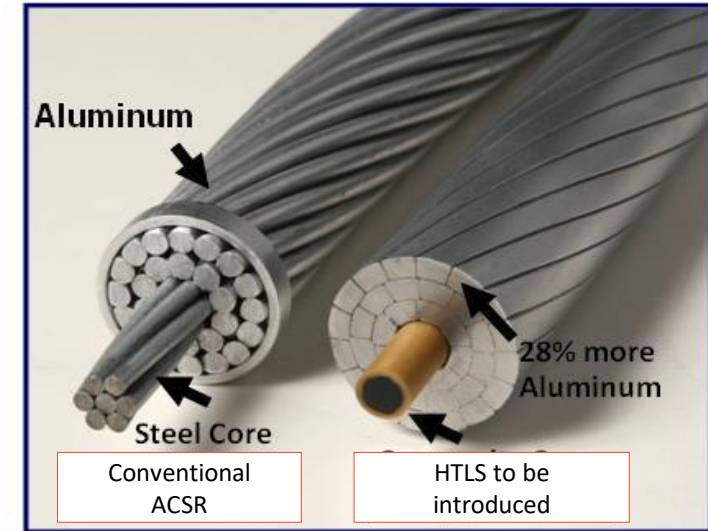


Solar PV at the project site



# 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)





# 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)





# 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







# 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: Flow BESS and Ocean Renewable Energy 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



Renewable Energy Installation in Maldives



# Case study 8: Low Carbon Financing Intermediation in Palau

Project name	Disaster Resilient Clean Energy Financing (DRCEF) - Additional Financing
JFJCM grant	\$5 million
Technology supported	Cycle 1: Roof-top solar photovoltaic (PV) with battery energy storage systems (BESS) Cycle 2: clean energy technologies to be identified at the time of commencement of this cycle (e.g. wind, ocean energy and other renewable power generation, hydrogen, electric vehicle) that can meet JCM requirements
Description	National Development Bank of Palau (NDBP) will establish a new loan product with subsidized interest rate to promote low-carbon technologies, which is also expected to improve disaster resilience. The product is designed to support clean energy investment by the private sector in Palau, with particular focus on micro, small and medium enterprises (MSMEs) borrowers, including women-led businesses. The funding will be managed as a revolving fund, where the repaid principal will be used for multiple cycles by NDBP.
Location	MSMEs' premises within Palau
Emission reductions	3.1 thousand tCO <sub>2</sub> e/year (estimate) *Average of emission reductions by Cycle-1 for 20 years



Rooftop solar panels installed under Phase 1 of DRCEF Project.