Overview of the Asian Development Bank

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

Approvals in 2018: ($ million)

<table>
<thead>
<tr>
<th>(Loans, Grants and others*)</th>
<th>21,581</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sovereign</td>
<td>18,446</td>
</tr>
<tr>
<td>Loan</td>
<td>17,022</td>
</tr>
<tr>
<td>Guarantee</td>
<td>-</td>
</tr>
<tr>
<td>Grants</td>
<td>1,423</td>
</tr>
<tr>
<td>Nonsovereign</td>
<td>3,136</td>
</tr>
<tr>
<td>Loan</td>
<td>2,862</td>
</tr>
<tr>
<td>Guarantee</td>
<td>-</td>
</tr>
<tr>
<td>Equity Investment</td>
<td>274</td>
</tr>
</tbody>
</table>

* Does not include technical assistance and cofinancing
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

**Target** 75% of ADB’s of the number of committed operations (on a 3-year rolling average) will support climate mitigation and adaptation by 2030

**Target** Climate finance from ADB’s own resources reach $80 billion (2019-2030)
### ADB Approach to Climate Finance Mobilization

#### Deploying concessional resources

**Internally managed resources (ADB donor trust funds and special funds)**
- Climate Change Fund (CCF)
- Clean Energy Financing Partnership Facility (CEFPF)
- Urban Climate Change Resilience Trust Fund (UCCRTF)
- Asia-Pacific Climate Finance Fund (ACliFF)
- High Level Technology Fund (HLTF)
- Others with bilaterals

**Multilateral funds**
- Climate Investment Funds (CIF)
- Global Environment Facility (GEF)
- Green Climate Fund (GCF)

#### Maximizing market mechanisms

- **Upfront carbon finance**
  - Asia Pacific Carbon Fund
  - Future Carbon Fund
- **Carbon Market Technical Support Facility**
  - CDM support
  - Domestic emissions trading
- **Japan Fund for the Joint Crediting Mechanism**
- **Green and Climate Bonds**
- **Supporting other market mechanisms** (e.g. renewable energy credits; feed-in tariffs)

#### Catalyzing private capital

- **Direct project finance** (lending, guarantees, syndications), and equity investment
- **Public private partnerships:** (PPPs) working with client DMCs across stages of PPPs
### ADB’s Carbon Market Program

<table>
<thead>
<tr>
<th>Technical Support Facility</th>
<th>Asia Pacific Carbon Fund</th>
<th>Future Carbon Fund</th>
<th>Japan Fund for the Joint Crediting Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commenced in 2006</td>
<td>$151.8 million Trust Fund to purchase pre-2013 CERs</td>
<td>$115 million Trust Fund to purchase post-2012 CERs</td>
<td>$70.0 million by MOEJ</td>
</tr>
<tr>
<td>TA 6363: Preparing Clean Energy Projects Eligible for the Clean Development Mechanism</td>
<td>Fund Participants include Seven European Governments</td>
<td>Fund Participants include Four Governments and two private sector entities from Europe and Asia</td>
<td>JFJCM provides financial incentives for adoption of advanced low-carbon technologies in ADB-financed projects</td>
</tr>
<tr>
<td>TA 6438: Implementation of the Technical Support Facility under the Carbon Market Initiative</td>
<td>Supported 71 CDM projects in 9 DMCs</td>
<td>Contracted 10.45 million CERs with an investment of $59.5 million</td>
<td>Grant to sovereign projects (max. $10 million)</td>
</tr>
<tr>
<td>TA 8223: Supporting the Use of Carbon Financing to Promote Green Growth in Asia and the Pacific</td>
<td>Contracted 15.63 million CERs</td>
<td>Supporting 36 CDM projects in 12 DMCs</td>
<td>Interest subsidy to non-sovereign projects (max. $10m)</td>
</tr>
<tr>
<td>TA 9062: Supporting Low-Carbon Development in Asia and the Pacific</td>
<td>Provided carbon finance to 1.9 GW renewable energy projects</td>
<td>All contracted CERs received and distributed to Fund Participants</td>
<td>$31.48 million committed to five approved projects in Maldives, Cambodia, Bangladesh and Mongolia</td>
</tr>
<tr>
<td>TA 8654: Supporting the Use of Carbon Financing from New Carbon Market Mechanisms to Promote Green Growth in Asia and the Pacific</td>
<td>All contracted CERs received and distributed to Fund Participants</td>
<td>Fund closed in 2014</td>
<td></td>
</tr>
<tr>
<td>TA 8800: Supporting Low-Carbon Development in Asia and the Pacific</td>
<td>Fund closed in 2014</td>
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</tbody>
</table>
Japan Fund for the Joint Crediting Mechanism

- Established in June 2014 as one of ADB’s trust funds
- Provides financial incentives (grants) 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
JFJCM eligible countries

Mongolia
Bangladesh
Maldives
Viet Nam
Lao PDR
Indonesia
Palau
Cambodia
Myanmar
Thailand
Philippines

2013
2014
2015
2016
2017

Ethiopia
Kenya
Costa Rica
Mexico
Saudi Arabia
Chile

11 out of 17 JCM partner countries are ADB Developing Members
Eligible projects and technologies

**Eligible Project**

- Project co-financed with an ADB or ADB administered funds.
  * Can be used for additional financing to ongoing ADB project.

**Eligible Technology**

- Advanced low carbon technologies that reduce greenhouse gas (GHG) emission including CO\(_2\) from energy source.
- The technologies must have a proven implementation and operation record of its technical effectiveness.
JFJCM support to ADB projects (sovereign)

- JFJCM provides grant for incremental cost of advanced low-carbon technologies
- Amount of grant, maximum of:
  - i. 10% of the project cost (capped to $10 million)
  - ii. $5 million if the project cost < $50 million
JFJCM support to ADB projects (nonsovereign)

- **ADB**
  - Private Sector Operations
  - JFJCM

- **Project Owner** (host country)
  - EE/RE projects applying JCM

-Interest subsidy

- JFJCM provides interest subsidy to ADB’s loan to energy efficiency / renewable energy projects applying JCM

- Amount of interest subsidy:
  - 10% of project cost (capped to $10 million)
Interest subsidy under the JFJCM (example)

Assumptions of ADB loan

- Loan amount: $50 million
- Interest rate: 5% (base case) → 3% (with JFJCM support)
- Repayment: 15-year amortization

**Base case**

total interest payment: $18.8 million

**With JFJCM support**

total interest payment: $11.3 million

JFJCM interest subsidy: $7.5 million
Requirements under JFJCM: JCM application

- The JFJCM subcomponents cannot apply for other international carbon market mechanisms (e.g. clean development mechanism)

JCM Application

- 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)

Technical support may be provided by consultants hired by JFJCM
Points considered in project evaluation

As ADB loan project
- The project must be bankable
- Procurement through a competitive process
- Contribution to development goals of host country
- Operational experience, track record and institutional capacity of project developer

As JFJCM project
- Use of advanced low-carbon technologies applying the joint crediting mechanism (JCM):
  - clear and long-term GHG emission reductions
  - possibility of robust MRV
- Cost effectiveness*
  - cost of reducing 1tCO$_2$e ≤ $40
* grant amount / (annual GHG emission reduction x project period)
ADB/JFJCM project non-sovereign approval process (1)

**ADB loan process**

- **Concept Review**
  - Review of business plan and financials
  - Internal peer review
  - Concept Review Committee’s review

- **Due Diligence**
  - Technical, commercial, legal and safeguards due diligence
  - Finalize term sheet
  - Formal risk rating
  - Disclose safeguards documents

- **Final Review**
  - Investment Committee review
  - President’s review

**JFJCM process**

- **ITD Review**
  - Prepare Initial Project Title and Description (ITD)
  - Government of Japan (GOJ) approval

- **Project Proposal preparation**
  - JFJCM due diligence
  - Prepare Project Proposal

- **Project Proposal review**
  - ADB approval (2-steps: Technical Advisory Group + Climate Change Steering Committee)
  - GOJ approval*

* GOJ approval should be obtained before IC review, but ideally before term sheet.

By ADB Project Officer

Continued to next page
ADB/JFJCM project non-sovereign approval process (2)

ADB loan process

Board Approval
- 21-day circulation to the Board for review
- Board’s approval

Loan Agreement
- Signing of loan agreement

JFJCM process (JCM Implementation)

Methodology Development and Approval

PDD Development, Validation and JCM Registration of Project

Monitoring, Verification and Issuance
[at least 2-3 times during project period]
<table>
<thead>
<tr>
<th>#</th>
<th>Project</th>
<th>Country</th>
<th>JFJCM grant</th>
<th>Approval</th>
<th>Technologies supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preparing Outer Islands for Sustainable Energy Development Project (POISED)</td>
<td>Maldives</td>
<td>$5 million</td>
<td>Mar 2015</td>
<td>Advanced battery system and energy management system (EMS)</td>
</tr>
<tr>
<td>2</td>
<td>Provincial Water Supply and Sanitation Project</td>
<td>Cambodia</td>
<td>$10 million</td>
<td>Dec 2017</td>
<td>Energy efficient wastewater treatment system</td>
</tr>
<tr>
<td>3</td>
<td>Southwest Transmission Grid Expansion Project</td>
<td>Bangladesh</td>
<td>$7 million</td>
<td>Jul 2018</td>
<td>Energy efficient transmission lines</td>
</tr>
<tr>
<td>4</td>
<td>Upscaling Renewable Energy Sector Project</td>
<td>Mongolia</td>
<td>$6 million</td>
<td>Sep 2018</td>
<td>Solar PV with advanced battery system and EMS</td>
</tr>
<tr>
<td>5</td>
<td>Improving Access to Health Services for Disadvantaged Groups Investment Program</td>
<td>Mongolia</td>
<td>$3.48 million</td>
<td>Oct 2019 (tbc)</td>
<td>Energy efficient HVAC, high insulation window, rooftop solar PV and ground source heat pump</td>
</tr>
</tbody>
</table>

$31.48 million
Case study 1: micro-grid technology in Maldives

<table>
<thead>
<tr>
<th>Project name</th>
<th>Preparing Outer Islands for Sustainable Energy Development Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFJCM grant</td>
<td>$5 million</td>
</tr>
<tr>
<td>Technology supported</td>
<td>Advanced battery system and energy management system</td>
</tr>
</tbody>
</table>
| Description                       | On top of 1.6 MW of solar PV installed under the project, battery storage and EMS supported by JFJCM will:  
  - Smooth out the fluctuation of solar PV generation  
  - Optimize diesel generator operation  
  - Integrate large amounts of renewables to the grid |
| Location                          | Addu, Maldives                                                      |
| Emission reductions               | 1.3 thousand tCO$_2$/year (estimate)                                |

Signing ceremony for the contract on battery system and EMS

Project Site / Source: Ministry of Environment and Energy, Maldives
Case study 2: wastewater treatment in Cambodia

<table>
<thead>
<tr>
<th>Project name</th>
<th>Provincial Water Supply and Sanitation Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFJCM grant</td>
<td>$10 million</td>
</tr>
<tr>
<td>Technology supported</td>
<td>Energy efficient wastewater treatment</td>
</tr>
<tr>
<td>Description</td>
<td>Existing lagoon system will be replaced by a system consisting of high-rate trickling filter combined with filters and clarifiers, requiring a small area of land and less than 0.1 kWh/m³ of power for treatment</td>
</tr>
<tr>
<td>Location</td>
<td>Battambang, Cambodia</td>
</tr>
<tr>
<td>Emission reductions</td>
<td>6.4 thousand tCO₂e/year (estimate)</td>
</tr>
</tbody>
</table>
## Case study 3: Advanced transmission lines in Bangladesh

<table>
<thead>
<tr>
<th>Project name</th>
<th>Southwest Transmission Grid Expansion Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFJCM grant</td>
<td>$7 million</td>
</tr>
<tr>
<td>Technology supported</td>
<td>Energy efficient transmission lines</td>
</tr>
<tr>
<td>Description</td>
<td>Energy efficient transmission lines will increase high-voltage network capacity while reducing transmission losses and emissions including carbon dioxide. The key technology is high-temperature low-sag (HTLS) conductors.</td>
</tr>
<tr>
<td>Location</td>
<td>Between Gopalganj and Barisal, Bangladesh</td>
</tr>
<tr>
<td>Emission reductions</td>
<td>23.1 thousand tCO₂/year (estimate)</td>
</tr>
</tbody>
</table>
Case study 4: Upscaling renewables in Mongolia

<table>
<thead>
<tr>
<th>Project name</th>
<th>Upscaling Renewable Energy Sector Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFJCM grant</td>
<td>$6 million</td>
</tr>
<tr>
<td>Technology supported</td>
<td>5MW solar PV system, advanced battery system of 3.6 MWh and energy management system</td>
</tr>
<tr>
<td>Description</td>
<td>This solar power plant with battery and EMS 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.</td>
</tr>
<tr>
<td>Location</td>
<td>Uliastai, Mongolia</td>
</tr>
<tr>
<td>Emission reductions</td>
<td>6.4 thousand tCO₂/year (estimate)</td>
</tr>
</tbody>
</table>

Configurations of the Uliastai project site
## Case study 5: Green Hospital in Mongolia

<table>
<thead>
<tr>
<th>Project name</th>
<th>Improving Access to Health Services for Disadvantaged Groups Investment Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>JFJCM grant</td>
<td>$3.48 million</td>
</tr>
<tr>
<td>Technology supported</td>
<td>Energy efficient HVAC system, high insulation window, rooftop solar PV and ground source heat pump (GSHP)</td>
</tr>
<tr>
<td>Description</td>
<td>New building as expansion of existing hospital in UB will be constructed with adoption of low carbon technologies including HVAC system, high insulation windows and rooftop solar PV. New construction of three family health centers is also planned with GSHP installation, which replace the heat supply from electric heaters powered by coal fired power plants.</td>
</tr>
<tr>
<td>Location</td>
<td>Ulaanbaatar, Mongolia</td>
</tr>
<tr>
<td>Emission reductions</td>
<td>2.9 thousand tCO₂/year (estimate)</td>
</tr>
</tbody>
</table>
Thank you.

Shintaro Fujii
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JFJCM Fund manager
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