Session 3: Deep Dive into Carbon Markets

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23 June 2026

Presentation Outline

- **Rationale for Carbon Markets**
- **Current Status and Trends of Carbon Markets**

Q&A -10mins

- **Regional Cooperation for Carbon Markets**
- **Roadmap for enhancing readiness for Carbon Markets**

Q&A -10mins

- **ADB's Carbon Market Program**

Rationale for Carbon Markets

Leveraging Carbon Markets for Accelerating Climate Action

The Challenge

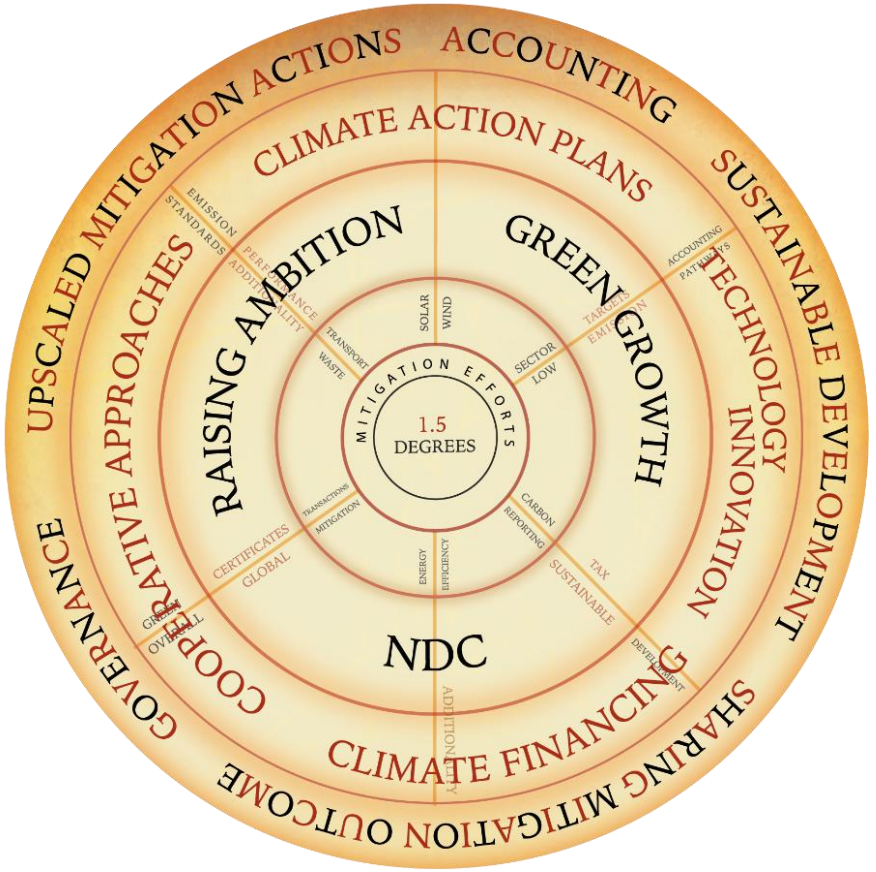
- $1.7 trillion required annually through 2030 to take needed climate actions in developing countries
- Existing public finance is insufficient to close the financing gap
- Private sector engagement is critical to scale up investments

The Role of Carbon Markets

- Mobilize carbon finance to overcome financial, regulatory, and technical barriers
- Create incentives for the deployment of low carbon technologies & solutions
- Catalyze private sector investments in climate mitigation actions

Growing Momentum

- Article 6 rules finalized in COP29 in Baku (2024)
- Growing interest in carbon markets for reducing GHG emissions cost-effectively
- Asia and the Pacific region expected to be the center of gravity for international carbon markets



Rationale for International Carbon Markets

Cost Effective Emission Reductions	Carbon markets encourage efficient ways of reducing emissions and discourage high-carbon options. By creating a financial incentive, carbon markets promote cost-effective emission reductions.
Generate Domestic Revenue	International carbon markets can include benefits sharing mechanism, creating revenues for governments and communities.
Mobilize International Carbon Finance	International markets can mobilize international carbon finance through the sale of carbon credits, which can be an important source of revenue for project developers in low- and middle-income countries (LMICs).
Crowding in Private Capital and De-Risking Investments	The private sector is a strong demand centre for carbon credits to meet their net-zero targets cost-effectively. In addition, given the risks involved with climate finance, carbon markets can provide an additional source of funding which can provide a justification for taking those additional risks.
Enhanced Ambition and Sustainable Development	Alongside mobilizing carbon finance, international carbon markets can diffuse advanced low carbon technologies and solutions which are critical in supporting LMICs meet their climate targets cost-effectively.
Diffusing Low Carbon Technologies and Solutions	Article 6 market allows countries to enhance their climate actions and achieve their nationally determined contributions (NDCs). Additionally, carbon markets promote sustainable development and environmental integrity.

Landscape of Carbon Markets

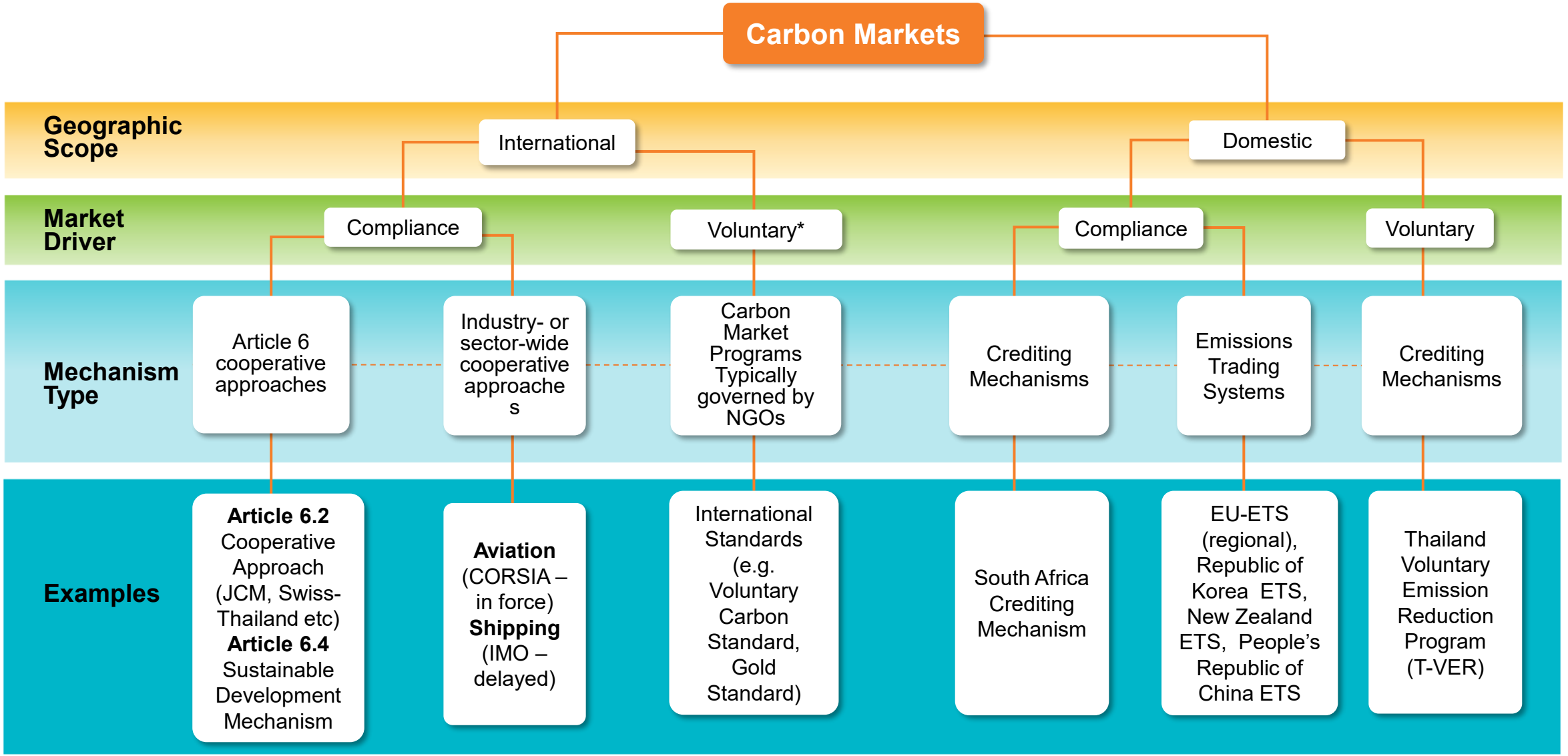


Figure: Asian Development Bank

Carbon Market Opportunities across multiple sectors

1 Land-Use and Forestry

- Community based forest management,
- Conifer forest preservation
- Afforestation
- Reforestation
- Mangrove restoration

2 Energy

- Competitive bidding for grid-connected RE
- Solar rooftop installations on public buildings & SMEs,
- Waste-to-energy projects
- Demand side measures incl. Minimum Energy Performance Standards for household appliances

3 Agriculture

- High efficiency irrigation systems,
- Reducing methane emissions from rice cultivation & livestock,
- Climate-smart agriculture,
- Enforcing a complete ban on burning crop residues

4 Waste

- Landfill gas capture & utilization
- Methane recovery from Waste-water Treatment plants
- Waste incineration with energy recovery

5 Transport

- BRT systems
- Inter-urban railways (Metros)
- Low carbon vehicles (EVs) & infrastructure

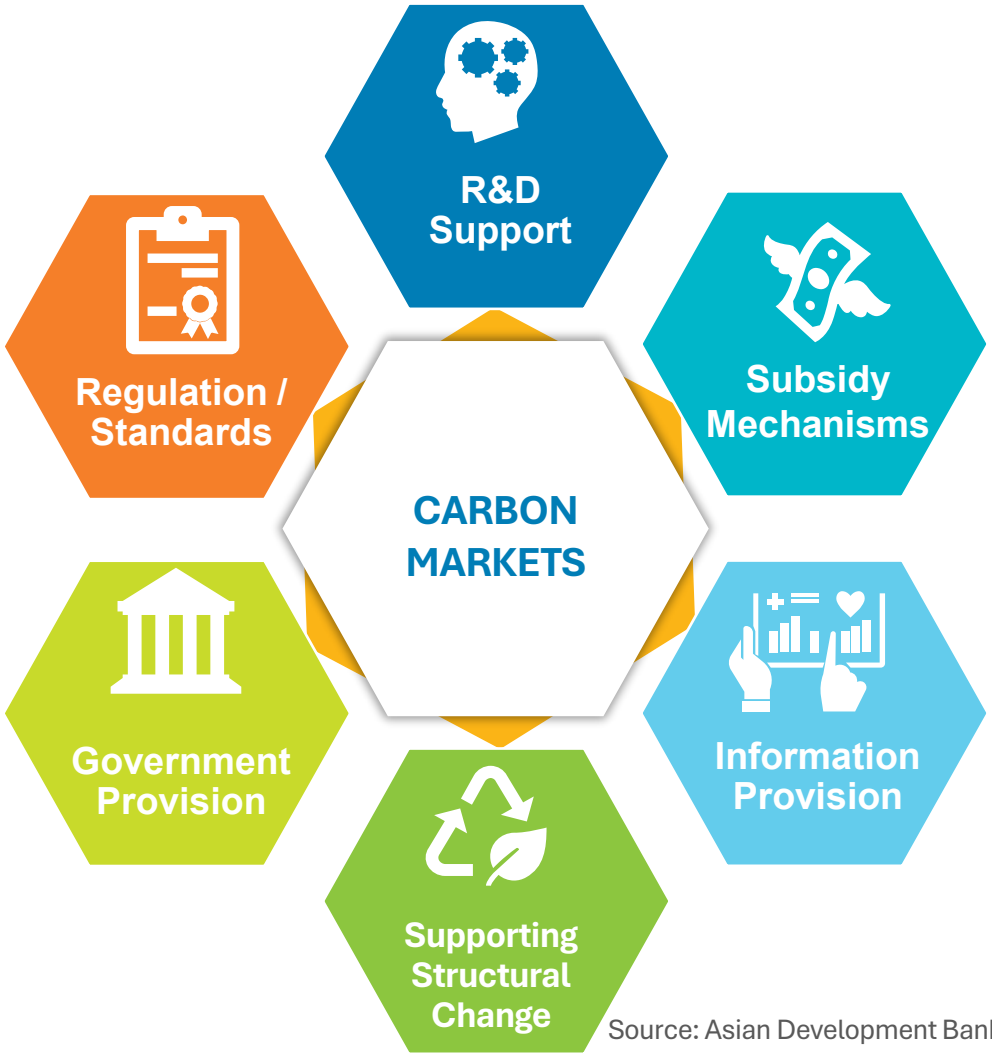
6 Industrial Process and Product Uses (IPPU)

- EE, resource efficiency, electrification, carbon capture

Policy Synergy

1. Carbon pricing and markets form an **integral element** of the broader climate policy architecture but they are not a panacea.
2. Carbon markets need to be supported by a **coherent climate policy mix**, and implemented in tandem with supportive policy instruments such as information provisions, phase-out of fossil fuel subsidies etc.
3. By allowing for **policy review** and continuously making improvements, a policy mix will improve over time

Ideal Role of Carbon Markets in the Broader Climate Policy Architecture



Source: Asian Development Bank

Current Status and Trends of Carbon Markets

Carbon Market Trends

Carbon Markets and Carbon Pricing

Domestic Carbon Markets and Carbon Pricing

Domestic mechanisms continue to expand globally, with growing coverage, though price levels and effectiveness vary significantly across jurisdictions.

International Carbon Markets

International carbon markets are gradually consolidating under clearer rules and higher integrity standards

Compliance Market

Article 6 mechanisms are still in early operational stages, with pilot transactions and momentum building, but liquidity and clear price signals yet to emerge

Voluntary Carbon Market

VCMs have seen declining volumes and softer prices since their 2021 peak, alongside a strong shift toward higher-integrity, quality-differentiated credits.

Carbon Pricing Trends

Amid slowing global growth, rising fiscal pressures, and increasing climate risks, governments are advancing national and regional carbon pricing and markets as tools to strengthen economic resilience, mobilize revenue, and support structural transformation toward low-carbon growth.

Carbon pricing is scaling globally, becoming a key instrument for mobilizing finance for decarbonization.

- 80 ETS and carbon taxes implemented globally
- >$100 billion in revenue raised for 2nd consecutive year
- 28% of global emissions covered by a direct carbon pricing
- Besides new systems, existing compliance systems are broadening & deepening. (e.g., China's national ETS is expanding to steel, cement, aluminum, adding ~1,500 companies and ~3 $GtCO_2e$ of coverage.)

Source: State and Trends of Carbon Pricing 2025

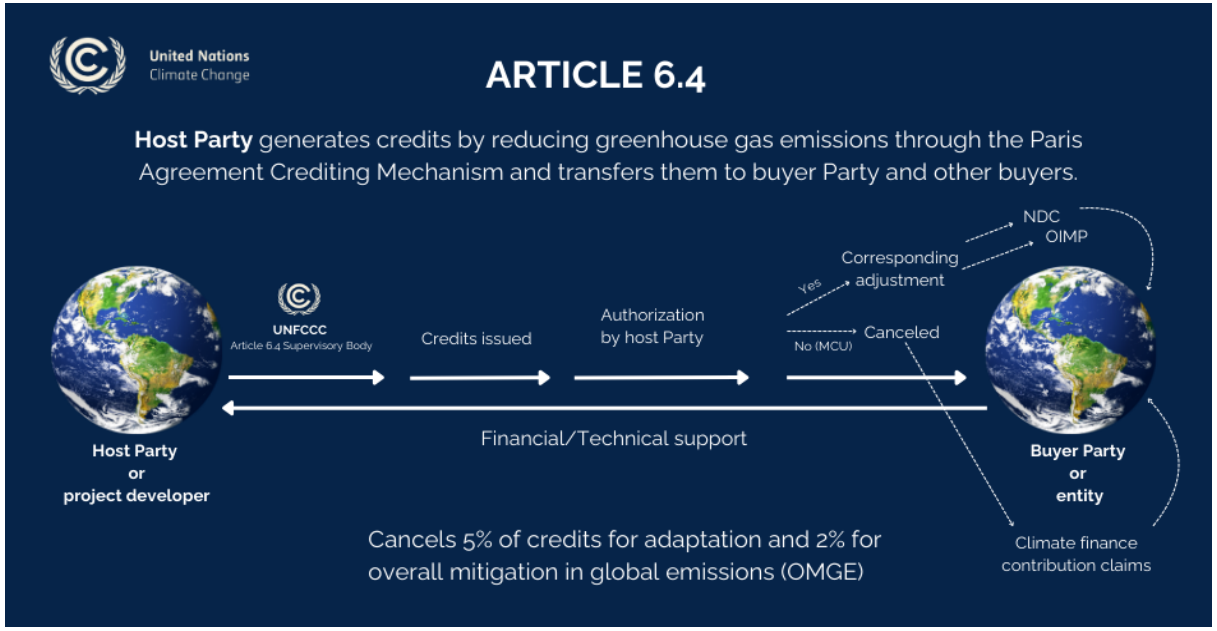
- **Carbon prices vary widely across ETSs**, reflecting differences in design and scope, making it difficult to define a single benchmark price range.

Global Carbon Price trends (USD/tCO2e)						
Year	EU ETS	China national ETS	Indonesia ETS	Kazakhstan ETS	Singapore carbon tax	UK ETS
2021	$49.8	-	-	$1.2	$3.7	-
2022	$86.5	$9.2	-	$1.1	$3.7	$98.6
2023	$96.3	$8.2	-	$1.1	$3.8	$88.1
2024	$61.3	$12.6	$0.6	$1.1	$18.5	$45.1
2025	$70.4	$11.8	$0.7	$0.9	$18.6	$57.2

Source: Price | Carbon Pricing Dashboard

- However, stronger **integrity standards** and **higher mitigation ambition** increase demand for high-quality credits, thereby driving higher carbon prices.
- **Trade linkages will amplify the price signal** as EU CBAM enters its definitive regime from 2026

International Compliance Carbon Market Trends



Source: UN Climate Change

- 110 Bilateral Agreements/ MoUs have been submitted
- 302 projects are being implemented under A6.2 – majority of them are under energy efficiency followed by solar and industry sectors
- ≈1.46 Mn tCO2/yr emission reductions are estimated from 147 JCM projects

- A total of 1,150 notifications for activities were submitted and published, including 915 projects and 235 programmes.
- PACM issued its first carbon credits from a clean cooking project in Myanmar, for use in Korea, marking the shift to implementation (40% lower credits due to tighter standards).

Source: UNEP Copenhagen Climate Centre; UNFCCC

Q&A discussion

Regional Cooperation For Carbon Markets

Regional Cooperation in the Context of Carbon Markets

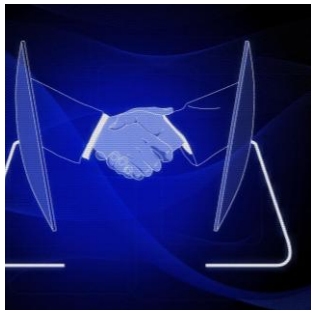
Challenges accessing carbon finance

- Limited public -sector institutional capacity
- Uncertainty amongst potential carbon market participants, due to fragmented and evolving regulatory frameworks
- Constrained private sector capacity for preparing and implementing carbon finance components of underlying investments
- High upfront capital cost alongside high transaction costs

Regional Examples and Knowledge Platforms

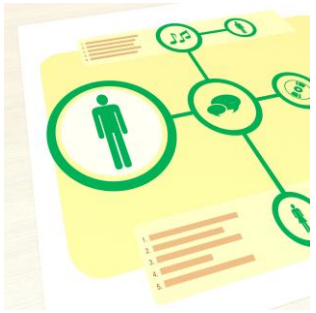
ASEAN Alliance on Carbon Markets

AACM is a private-sector-led hub supporting carbon market scaling and cross-border partnerships in ASEAN.



Memorandum of Collaboration at COP29

ASEAN associations signed an MoC to enhance interoperability and resource-sharing among carbon markets.



Global Toolkits for Cooperation

SPAR6C and A6IP provide structured guidance and tools for Article 6 implementation and carbon pricing.

Role for Regional Cooperation and Integration for Carbon Markets

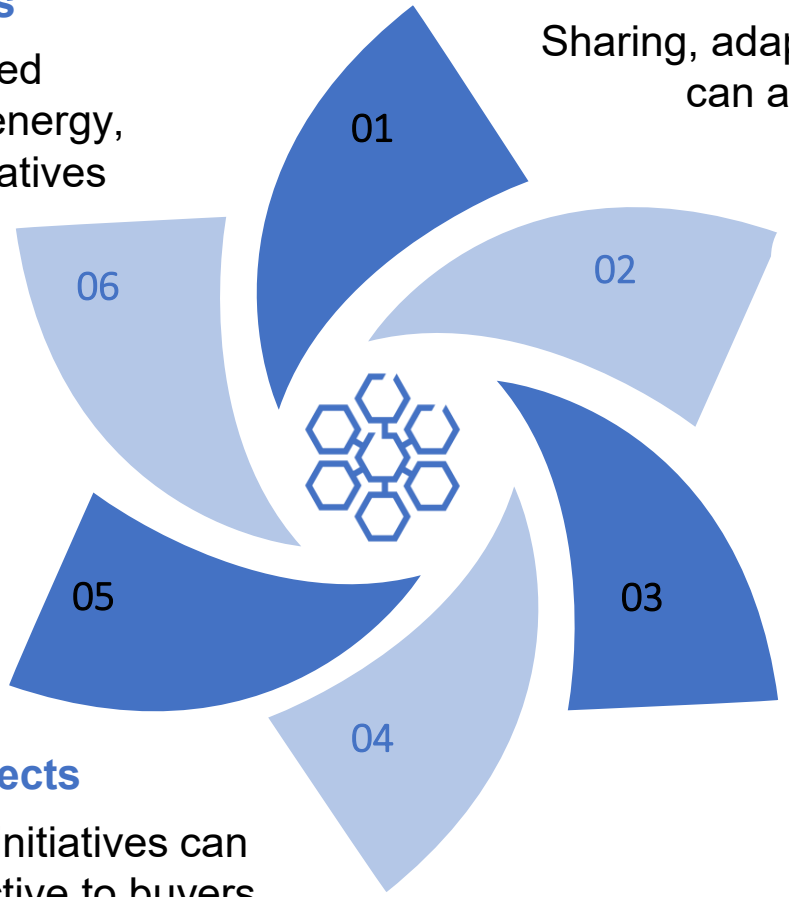
Regional cooperation and integration can help CAREC countries overcome challenges for accessing carbon finance by pooling resources, knowledge, experience, and learning together.

Diverse mitigation opportunities

Regional cooperation can offer varied mitigation options including renewable energy, energy efficiency, and blue carbon initiatives

Cooperating to accelerate readiness

Sharing, adapting, and aligning strategies and approaches can accelerate readiness and reduce costs



Joint efforts to increase institutional capacity and technical expertise

Joint regional capacity building and training programs can accelerate readiness for carbon market participation

Standardizing operational systems

Harmonized operational systems across the region can unlock access to international carbon finance

Joint efforts to support the private sector

Regional cooperation and integration can support the development of private sector engagement in carbon markets

Enabling cross-border projects

Integrating projects into multi-country initiatives can yield high-quality credits that are attractive to buyers

Roadmap for enhancing readiness for Carbon Markets

Building Blocks for Readiness to Operationalize Article 6

Bilateral Agreements: MOU & Implementation

Stakeholder Consultations

Capacity Building for the key policy makers, line Ministries, Private Sector and other stakeholders

Roadmap to Building Article 6 Readiness

Broad Policy Framework – NDC integration

- Conditional and unconditional NDC targets
- Plan for NDC implementation
- Article 6 interest in NDC

Carbon Market Strategy and Institutional Arrangements

- Defined objectives and priorities
- Clarity on eligibility for Article 6
- Institutional roles and responsibilities clarified

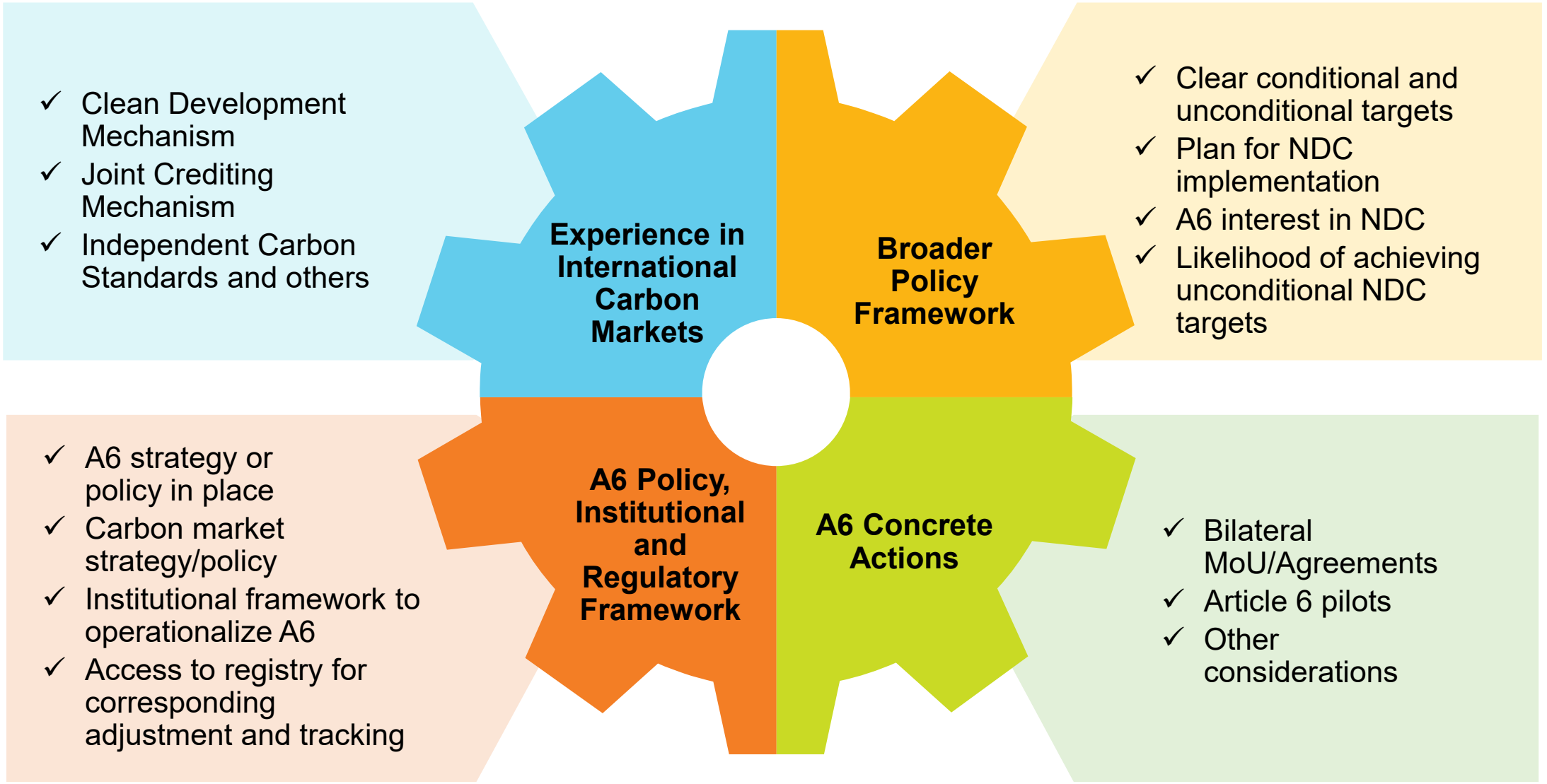
Pilot Projects and Transactions

- Replicable and demonstrative projects

Policy and Regulatory Framework

- Bilateral agreements
- Recognition of Carbon Standards
- Decision processes for approval, transfer, authorization, etc.
- Arrangements for registry, accounting, reporting, and tracking

Framework for ADB Article 6 Readiness Tool



CAREC Region Article 6 Readiness Assessment

Country	READINESS SCORE	Experience of **Hosting CDM** Projects	Experience of **Hosting JCM** Projects	Experience of **VCM** or RBF Schemes like REC, REDD+, NAMAs	Conditional and unconditional targets in **NDC**	Concrete plan for **NDC Implementation**	Stated interest or plans to participate in **Article 6 in NDC**	Likelihood of **achieving** the unconditional NDC **target**	**Article 6 Strategy** / Policy in place	**Carbon market strategy, policy** or regulations in place	Institutional framework to operationalize Article 6 (incl HCA, Authorization, transfer of ITMOs)	National / **International Registry** for CA and tracking ITMOs	Bilateral MOU / Agreement (s) for Article 6 cooperation	Article 6 pilot projects	Expert judgement
Azerbaijan	**40.0**	5	0	5	0	0	5	0	0	0	5	5	10	0	5
Georgia	**50.0**	5	0	5	5	5	5	5	0	0	5	0	10	0	5
Kazakhstan	**65.0**	5	0	5	5	5	5	0	0	10	5	5	10	0	10
Kyrgyz Republic	**50.0**	5	0	0	5	5	5	5	0	0	5	5	10	0	5
Mongolia	**70.0**	5	5	5	5	5	5	5	5	0	5	5	10	5	5
Pakistan	**85.0**	5	0	5	5	5	5	5	10	10	5	5	10	5	10
PRC	**25.0**	5	0	5	0	0	0	5	0	5	0	0	0	0	5
Tajikistan	**5.0**	0	0	0	5	0	0	0	0	0	0	0	0	0	0
Turkmenistan	**5.0**	0	0	0	5	0	0	0	0	0	0	0	0	0	0
Uzbekistan	**75.0**	5	0	5	0	5	5	5	10	10	5	0	10	5	10

Q&A discussion

ADB Carbon Market Program

ADB - Driving Climate Mitigation through Innovative Carbon Finance

- **Carbon Market Development**: Technical assistance and capacity-building support
- **Carbon Finance** Mobilization: Incentivizing investments in low-carbon technologies and solutions

ADB collaborates closely with regional and international development partners to co-create high-integrity carbon markets that supports transparent, inclusive and impactful climate action across Asia and the Pacific.

ADB's Carbon Market Program

Japan Fund for the Joint Crediting Mechanism

Carbon finance to incentivize deployment of advance low-carbon technologies

- Provides financial incentive for deploying advanced low-carbon technologies in ADB-financed projects, under the Joint Crediting Mechanism, aligned with Article 6.2.
- Upfront finance
- Demand signal

$138.6 mn

- **Ministry of the Environment, Japan**
- **Ministry of Foreign Affairs and Trade, New Zealand**

Article 6 Support Facility

Technical and Capacity Building Support to enhance carbon market readiness and projects

- **Upstream**: National Strategies, Frameworks, Institutional Infrastructure for carbon markets
- **Midstream**: Pipeline of projects for carbon credits
- **Downstream**: Support development of carbon projects to generate carbon credits

$7.8 mn

- **Federal Ministry for Economic Cooperation and Development, Germany**

Climate Action Catalyst Fund

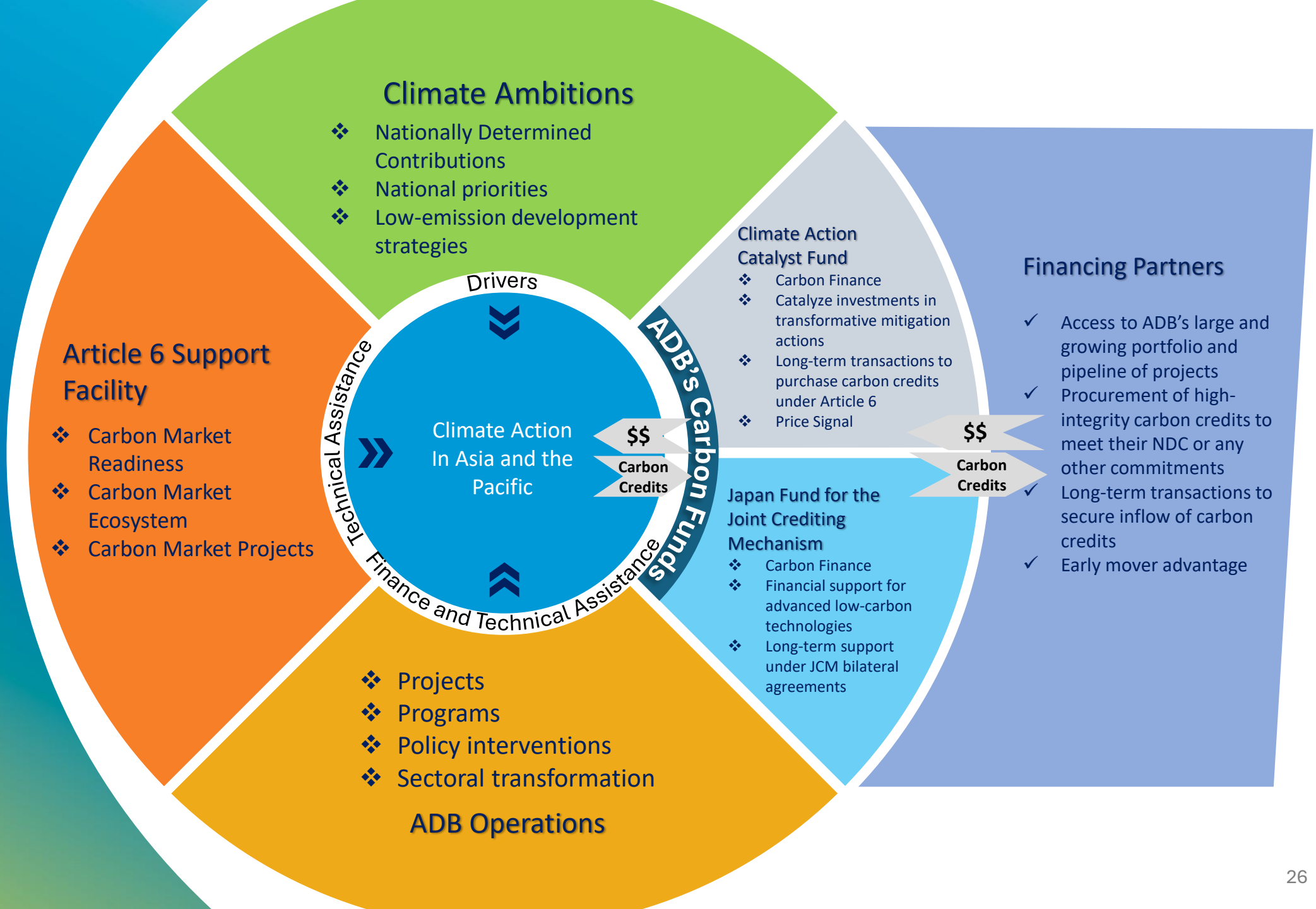
Carbon finance to support transformative mitigation actions

- Pre-purchase of carbon credits from ADB financed projects generating carbon credits under Article 6 of the Paris Agreement
- Long term fixed price contracts and upfront payments
- Price signal

$77.0 mn

- **Swedish Energy Agency**
- **Norwegian Ministry of Climate and Environment**

ADB's Work on Carbon Markets



Case Study: Low-carbon Heating in the Kyrgyz Republic

Existing coal-fired boilers in a targeted school

Project-At-A-Glance

Project name:
Bishkek Low-carbon Municipal Building Upgrading Pilot (under the Multisector Activities Support Facility 2025–2030)

Emission reductions:
6,400 tCO2e/yr (estimate)

Project description

The project will introduce low-carbon and energy-efficient technologies in five schools and one preschool in Bishkek. It will combine conventional measures (mainly building envelope insulation) with advanced technologies such as energy-efficient space conditioning using heat pumps, heat recovery ventilation, and building energy management systems.

These upgrades will replace coal-fired heating, reducing GHG emissions and energy costs, and improving indoor and outdoor air quality. The project will also build local expertise and demonstrate scalable, replicable energy-efficient building solutions in the country and the region.

Technology

- ❑ Heat pumps (closed-loop ground-source, air-to-water, and wastewater types)
- ❑ Heat recovery ventilation
- ❑ Building energy management systems

Panel discussion

Q&A discussion

Thank You!