Introduction to Carbon Markets and their Role in Climate Policy Architecture

Virender Kumar Duggal
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This session will provide foundational knowledge of carbon markets and their strategic role in the context of broader climate policy frameworks. The session will provide an overview of domestic and international carbon markets and how market participation can contribute to achieving national climate policy objectives.

Paris Agreement

New Paradigm of Multilateral Agreements

Objective: Hold the increase in global average temperature as close to 1.5°C as possible.

5-year cycles to ambitiously increase climate action.

Bottom-up approach: Parties establish their own commitments, which must be communicated through Nationally Determined Contributions (NDC).

Linking Climate and Sustainable Development

Both the UNFCCC and the Paris Agreement explicitly recognize the **linkages** between addressing climate change and sustainable development

They both call for implementation that reflects equity and the principle of common but differentiated responsibilities and capabilities, in the light of **different national circumstances**

They emphasize the importance of eradicating poverty, protecting food production, and providing support to developing country Parties for effective implementation and to allow for **higher levels of ambition** in their actions

Integrating Climate and Development Policies

Potential benefits

- Climate-savvy policies and institutions
- Climate-smart infrastructure
- Climate-smart systems and processes
- Climate-friendly production and consumption
- Increased resilience to climate-change impacts

Integrating Climate and Development Policies

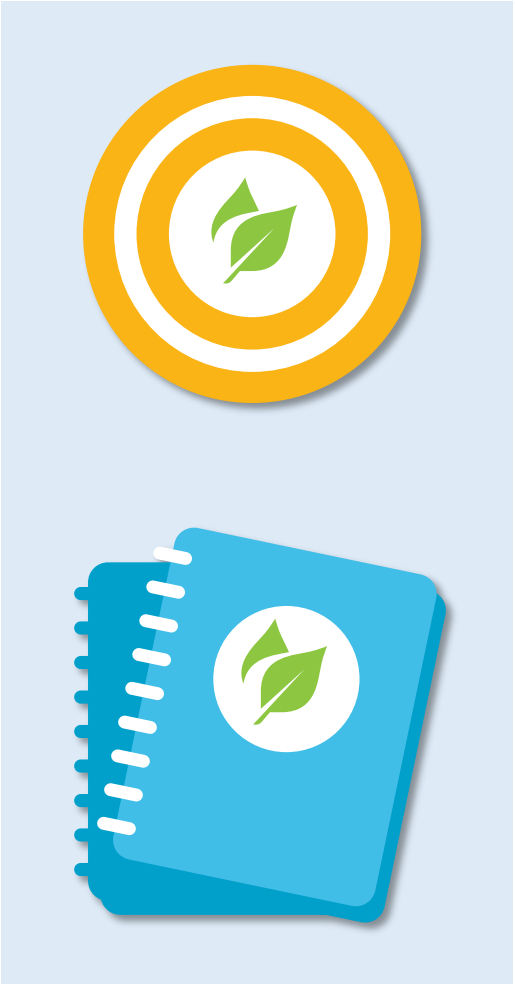
Potential conflicts and tradeoffs

- Competition over resources
- Equity and distributional concerns
- International and domestic competitiveness
- Pushback from special interests
- Short-term progress versus long-term sustainability
- Transformational change and societal adaptability (just transitions)

In your words:

Type in up to three words that describe your view of the most challenging tensions between mitigating climate change and achieving prioritized development goals in your country

NDCs – Strategic Policy Documents



- NDCs articulate a country's ambition for climate action at a strategic level
- NDCs are often complemented by policy and planning documents that define how national targets will be achieved
  - ✓ Long-term emission development strategies
  - ✓ Economy-wide and sectoral planning policies
  - ✓ Provincial planning policies

Barriers to Increasing Ambition

- Insufficient institutional capacity to assess options
- Insufficient institutional capacity to formulate and/or implement action plans
- **Lack of financial resources to incentivize investment in mitigation measures**
- Insufficient capital to enable even cost-effective measures
- Necessity of importing technology and know how to implement mitigation measures
- Regulatory and market barriers to private-sector investment
- Lack of confidence that more stringent commitments can be achieved without conflicts with development priorities

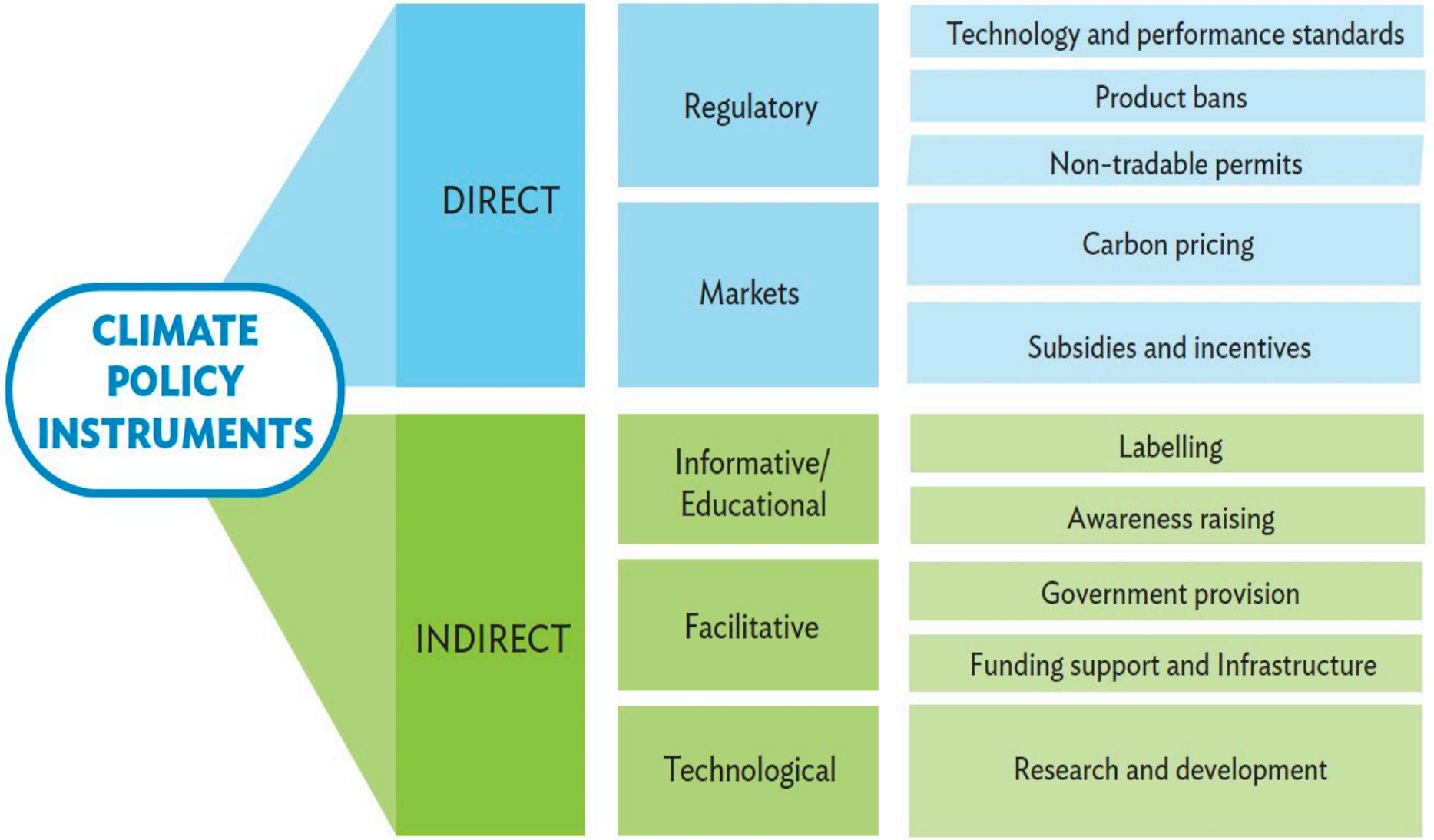
What is Carbon Pricing? The Polluter pays !

- Carbon pricing **puts a price on emitting** greenhouse gases
- The **Polluter-pays Principle**
- **Attaching a cost to emitting GHGs** incentivizes economic actors to **take emissions into account** when making economic decisions
- Carbon Pricing faciliate behavioural changes for the corporates and individuals

- Businesses will treat these costs like any other costs and **aim to reduce them** to increase their profitability and/or market share
- Low-carbon products become **more competitive**
- **Innovation** through cost cutting and investment in low-carbon solutions

Carbon Pricing in the Broader Climate Policy Architecture

- Carbon pricing is an **integral element** in the overall climate policy architecture
- Carbon pricing can be an effective **green fiscal policy instrument** to facilitate government spending and taxation to influence **green growth**
- To ensure a key role of carbon pricing, policy makers should reflect on what it is designed for and expected to do and design a **policy mix**

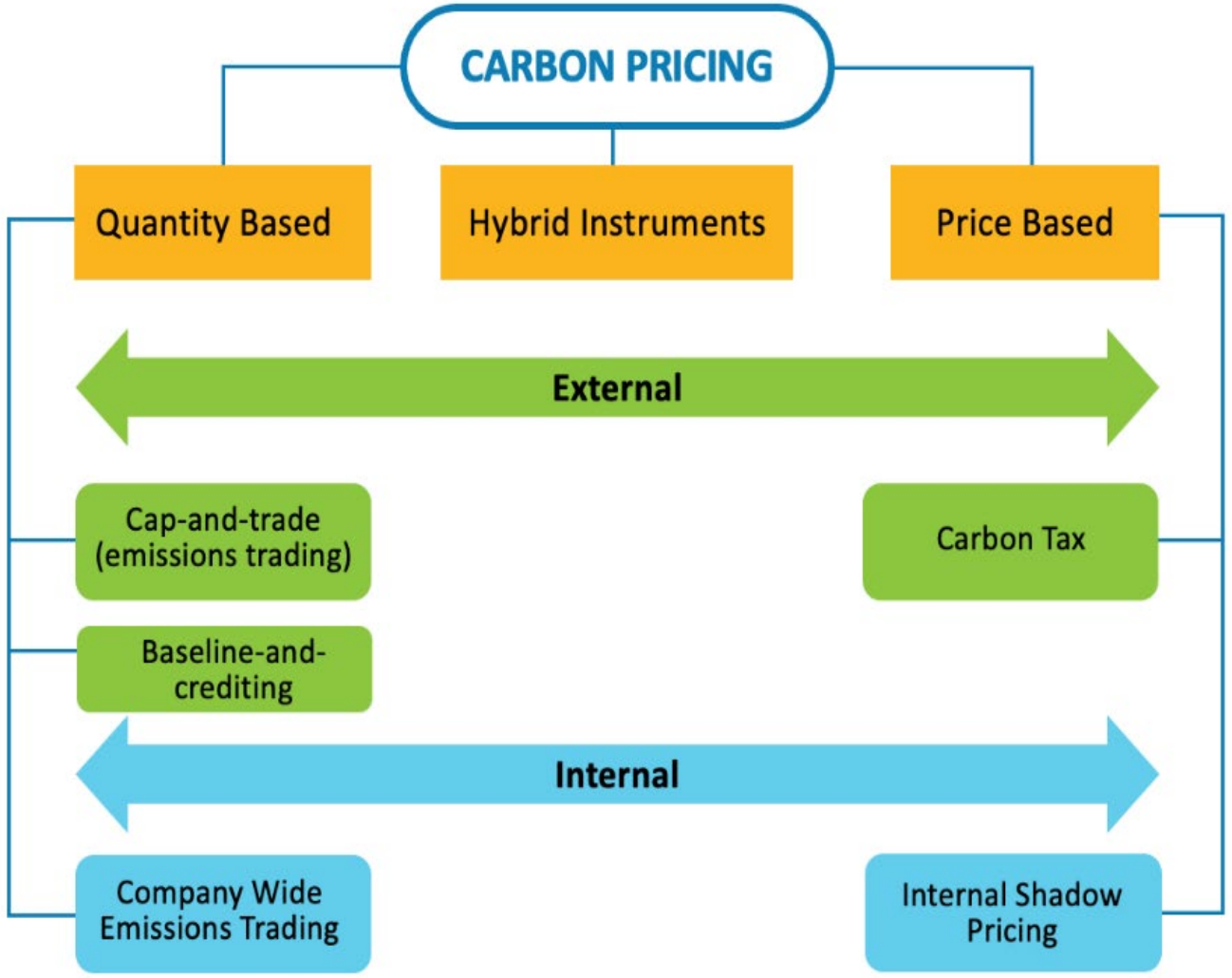


Source: Asian Development Bank

Landscape of Direct Carbon Pricing Instruments

There is a **broad landscape** of direct carbon pricing instruments. It includes carbon taxes, emissions trading, and baseline-and-crediting mechanisms. Carbon pricing can:

- Support achieving nationally determined contribution (NDC) **targets cost-effectively** and raising **ambition** over time
- Serve as a **powerful and cost-effective driver** for decarbonization, a just energy transition, and support realizing broader climate policy policy objectives
- Catalyze mobilization of **carbon finance** to incentivize the diffusion of **advanced low-carbon technologies and solutions**
- Raise much-needed **public revenue**

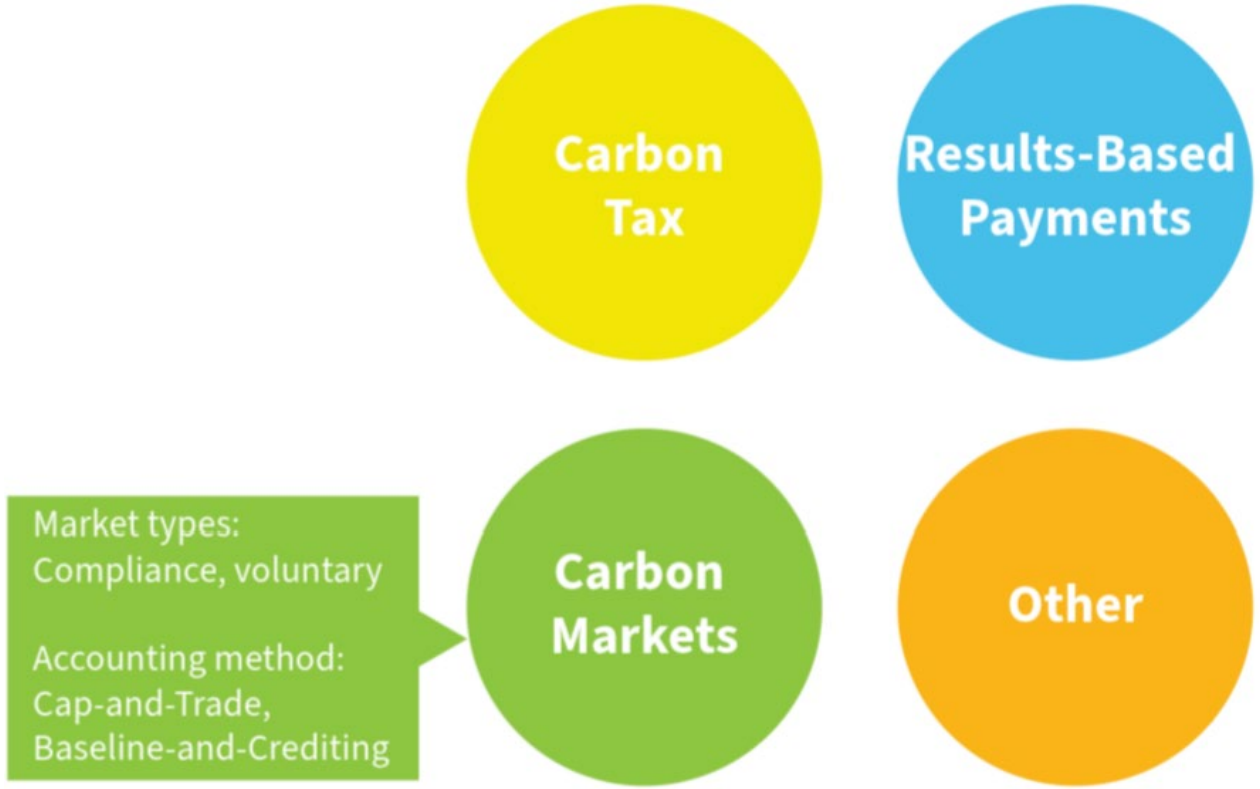


Source: Asian Development Bank

What are Carbon Markets?

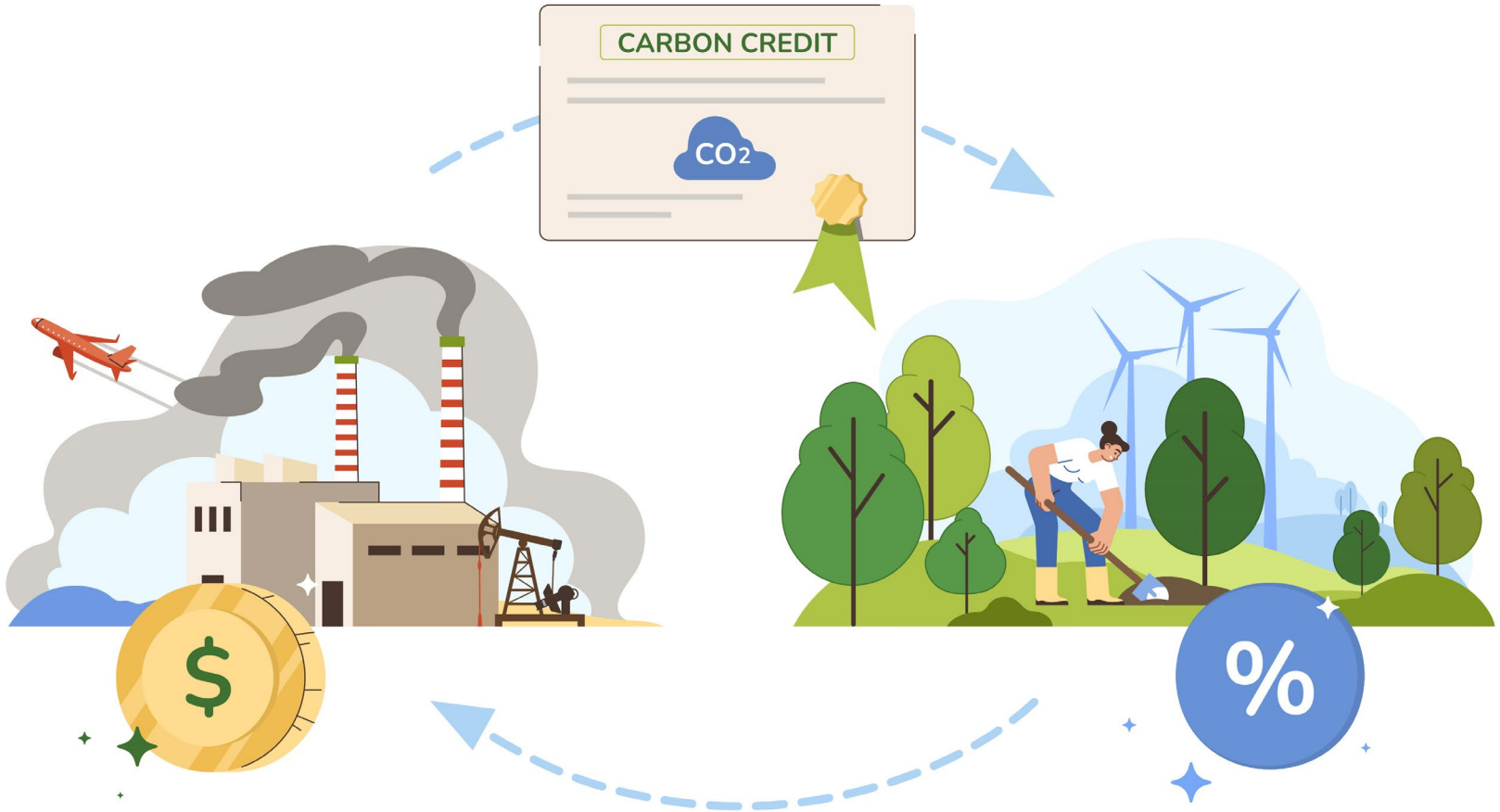
Carbon markets are trading systems in which emission reductions are sold and bought as credits or allowances. They are market based-approaches to control GHG emissions by providing economic incentives / liabilities.

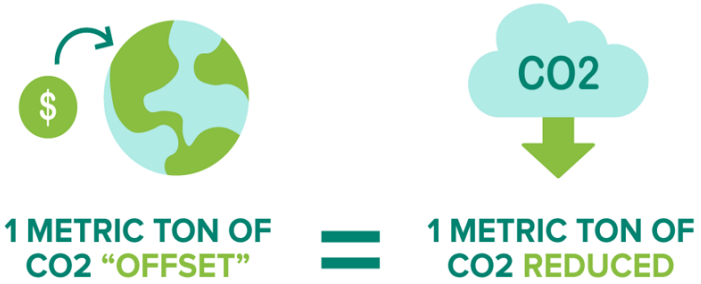
- Theoretically acts as a tool for entities to meet GHG reduction obligations flexibly and in the most cost-effective manner
- Two types of carbon markets: **compliance** (e.g., EU Emissions Trading System) and **voluntary** (e.g., American Carbon Registry) and they can be both **domestic** and **international**
- Within carbon markets two accounting systems exist: **baseline-and-crediting** (e.g., CDM, JCM) and **cap-and-trade** (EU ETS, California)



What is a Carbon Credit?

A carbon credit is a verified and tradeable certificate representing the reduction or removal of 1 metric ton of CO2 equivalent from being put into the atmosphere





Drivers of Demand and Supply

Demand Center

There are multiple demand centers that are actively looking to purchase carbon credits.

- Private sector and corporates who have announced net-zero commitments or are under a jurisdiction with a carbon price and allows the use of credits.
- National governments looking for compliance credits to achieve their NDC commitments
- Airlines looking for credits to fulfil requirements under Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

Supply Center

The supply of carbon credits comes from projects and activities that reduce and remove GhG emissions.

Under the Clean Development Mechanism, approximately 80% of projects are hosted in Asia and the Pacific. And around 90% of projects under the Joint Crediting Mechanism are hosted in Asia and the Pacific

Project developers will have to undergo a series of steps to assess GhG emission reduction, identify standards and methodologies and undertake robust MRV.

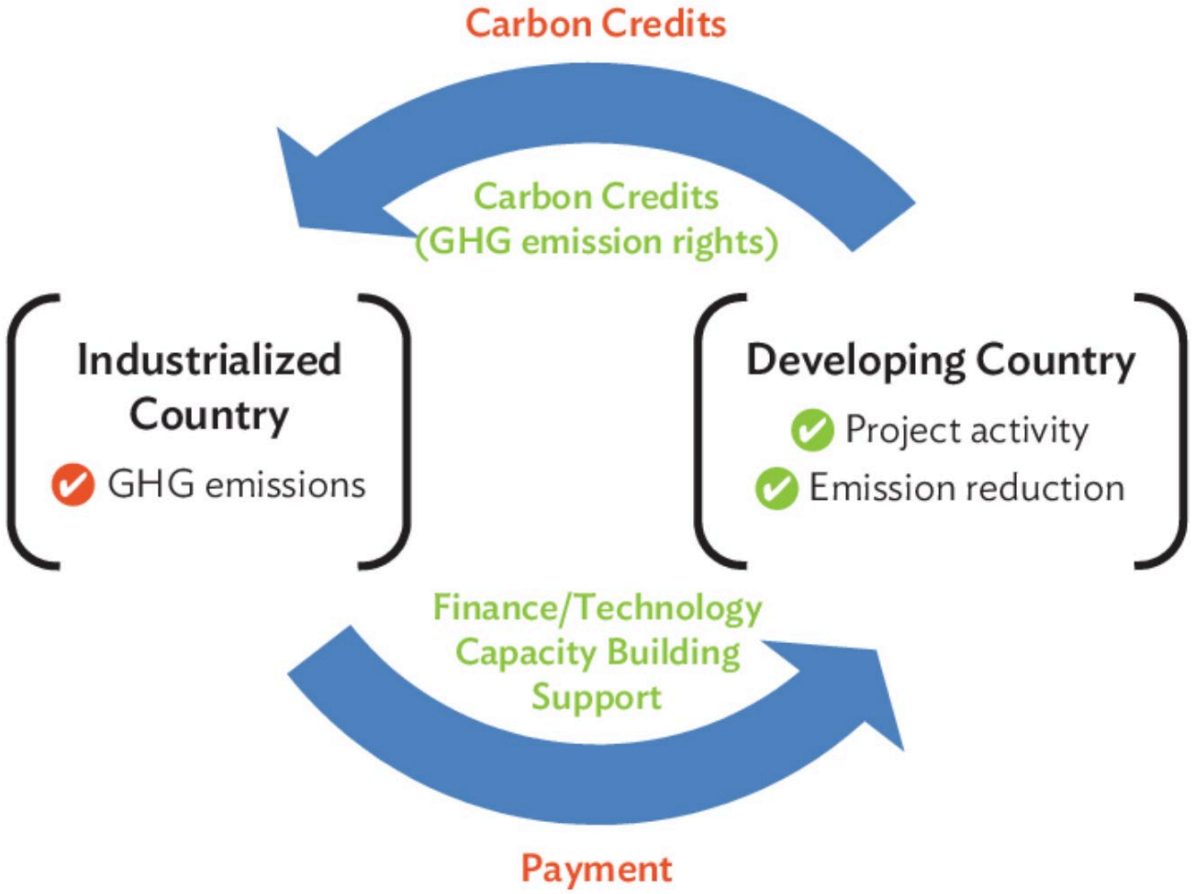
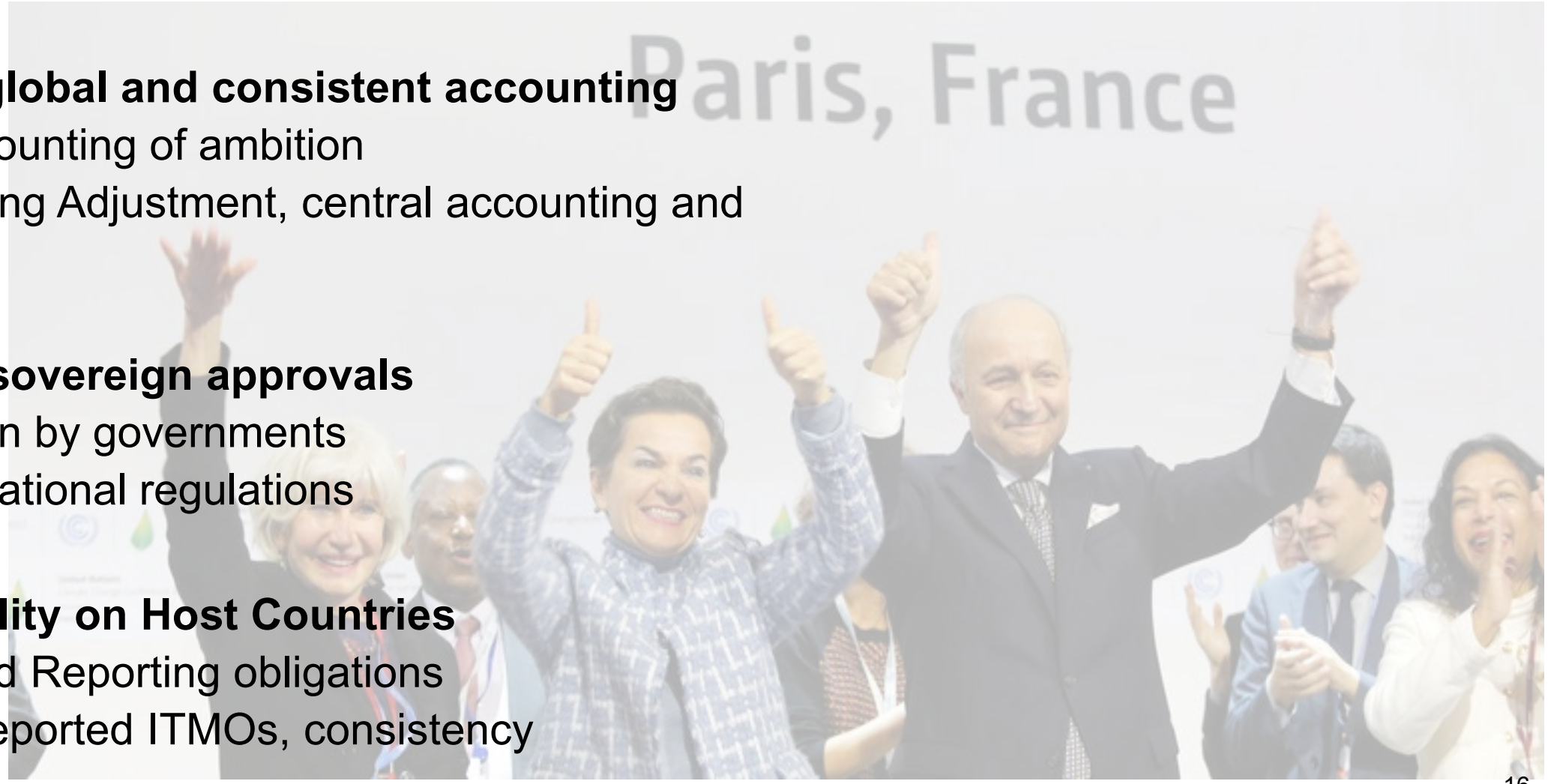


Figure: Carbon Market Demand and Supply. **Source:** Asian Development Bank

Carbon Markets under the Paris Agreement

What make Paris accounted units unique?



- **Access to global and consistent accounting**
  No double counting of ambition
  Corresponding Adjustment, central accounting and review

- **Represent sovereign approvals**
  Authorisation by governments
  Subject to national regulations

- **Accountability on Host Countries**
  Tracking and Reporting obligations
  Review of reported ITMOs, consistency

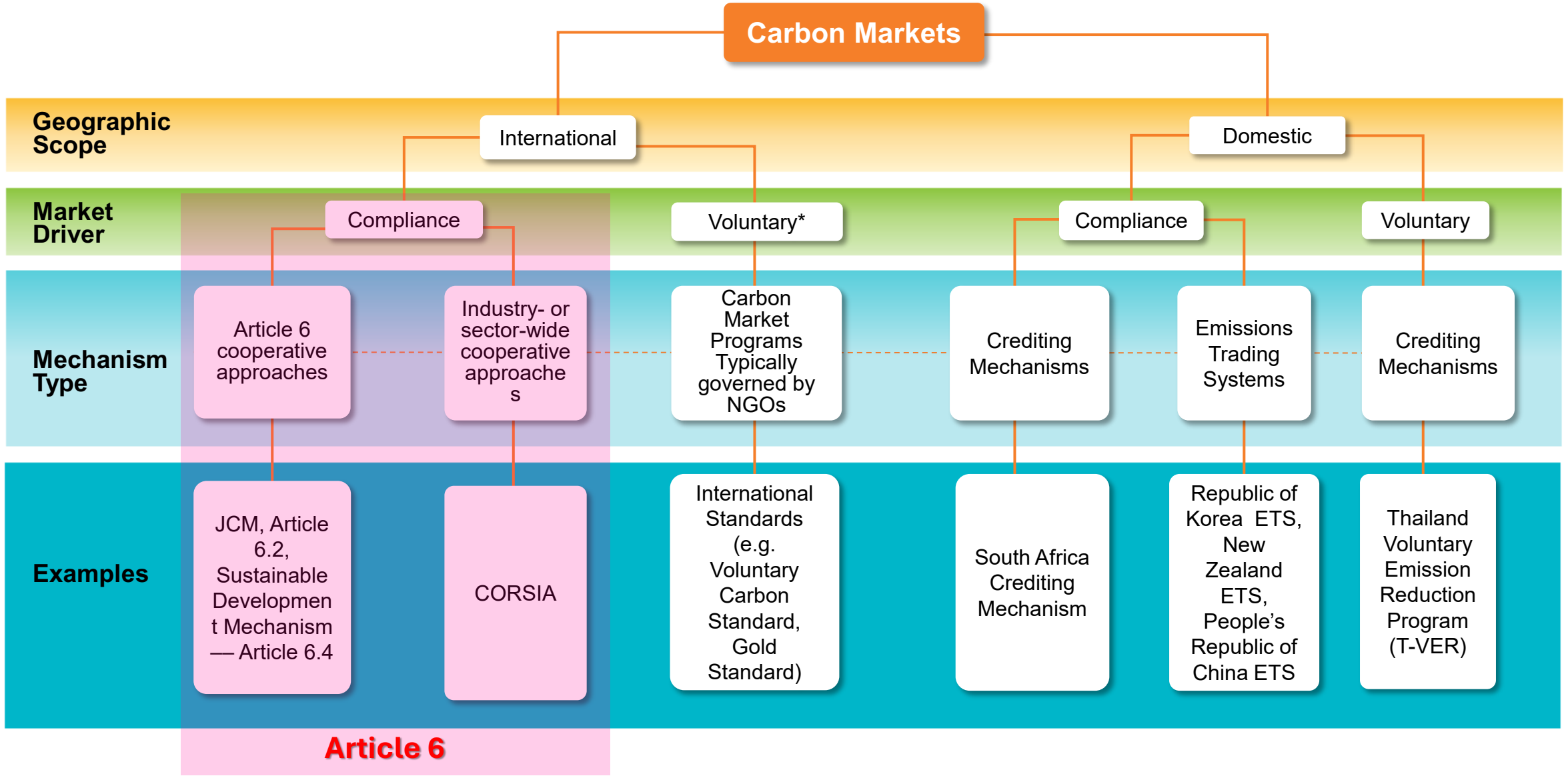
Emission Trading System (cap-and-trade)

- Regulatory body decides on the **total emissions allowed** under the scheme (the “cap”)
- Allowances are either given for **free** or **auctioned** to polluting firms covered by the system
- One allowance typically lets a firm emit **1 ton of CO2e**
- Market price determined by supply and demand of allowances – **price fluctuates over time**
- Agents that can abate at a marginal cost lower than the market price will do so and **sell some of the allowances**
- Agents that instead have high abatement costs above the market price will choose to **buy additional allowances**
- This ensures overall system efficiency and **incentivizing cost-effective emissions reductions**

Rationale for 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



THANK YOU!

QUESTION AND ANSWER

State of Domestic Carbon Markets in CAREC Member Countries

George Anjaparidze
Carbon Market Expert (Consultant), ADB

*This session will examine the efforts being made by various CAREC member countries to develop **domestic carbon markets**, taking into consideration their national circumstances and climate policy objectives.*

Emission Profile of CAREC Member Countries

Emission Profile of CAREC Member Countries

NDC Targets of CAREC Member Countries

NDCs of CAREC member countries can be grouped under three types (excluding NDCs 3.0).

Absolute emission reduction targets relative to 1990 base year	Deviation in GHG emissions from business as usual by 2030	Reduction by 2030 from a defined reference level
Azerbaijan • 35% reduction by 2030 • Conditional: 40% reduction by 2050 **Georgia** by 2030 • Unconditional: 35% reduction • Conditional: 50-57% reduction **Kazakhstan** by 2030 • Unconditional: 15% reduction • Conditional: 25% reduction	**Kyrgyz Republic** • Unconditional: 15.97% reduction • Conditional: 43.62% reduction **Mongolia** • Unconditional: 22.7% reduction • Conditional: 27.2% reduction plus removes by forest for total target 44.9% **Pakistan** • Unconditional: 15% reduction • Conditional: 35% reduction **Turkmenistan** • 20% reduction	**Tajikistan** • Unconditional: do not exceed 60-70% of 1990 GHG emissions per capita • Conditional: do not exceed 50-60% of 1990 GHG emissions per capita **Uzbekistan** • Reduce specific GHG per unit of GDP by 35% from the level of 2010 **People's Republic of China** • CO_2 emissions peak before 2030 and achieve carbon neutrality before 2060 • Lower CO_2 emissions per unit of GDP by over 65% from the 2005 level • Plus other targets

NDC 3.0 Targets of CAREC Member Countries

Targets up to 2035 compared to business as usual	
Mongolia	**Pakistan**
Unconditional: 30.3% reduction Forest removals: reaching 46.3% reduction Conditional: up to 52.8% reduction As such, the 2035 targets are set as follows: - Unconditional emission reduction: 24.7 Mt CO_2 eq. - Carbon sequestration (forest sink): 3.3 Mt CO_2 eq. - Conditional reduction (with full international support): 3.9 Mt CO_2eq.* *Additionally, Mongolia is planning to restore 10% of heavily degraded rangelands in forest-steppe and steppe ecological zones. As a result, rangeland carbon sequestration will be enhanced, depending on above and below ground carbon content and the area.	Unconditional: 17% reduction Conditional: additional 33% reduction

Source: Mongolia's Third Nationally Determined Contribution (NDC 3.0), 2025.

Source: Pakistan's Third Nationally Determined Contribution (NDC 3.0), 2025.

Functioning Domestic Carbon Markets: Kazakhstan

- **Carbon budget**: determines the volume of quota and non-quota greenhouse gas emissions permitted.
  - Set as five consecutive years and is aligned with international commitments
  - Covers emissions within and outside the carbon quota system
- **Carbon quota system**: also referred to as an emission trading system (ETS), covers carbon dioxide emissions from regulated installations of specified sectors.
  - Sectors covered include electric power, oil and gas, mining, metallurgical and chemical industries, as well as manufacturing industries of cement, lime, gypsum and brick production.
  - Installations that exceed 20,000 metric tons of CO_2 emissions per year are issued quotas.
  - Administered installations range in emissions from ten 10 to 20 thousand metric tons of CO_2 per year in regulated sectors, with obligation to report emissions but not subject to verification.
  - Administered installations have the right to participate in projects reducing emissions or increasing sequestration with the aim of obtaining carbon offsets.
  - Carbon offsets can be generated from any activities from any sector of the economy of Kazakhstan, so long as targeted emission reductions are not directly covered by the carbon quota system.

Functioning Domestic Carbon Markets: Kazakhstan

Functioning Domestic Carbon Markets: China

Progress on implementation of NDC is tracked through:

- Indicators: (i) Carbon peaking, (ii) Carbon intensity reduction (iii) share of non-fossil fuels (iv) Forest stock volume (v) Total installed capacity of wind and solar power.

Establishing a sound national carbon market is one of the mitigation policies and actions:

- National carbon emission trading market was officially launched in 2021 (mandatory carbon market)
  - Covering annual CO2 emissions of 5.1 billion metric tons, world's largest market in terms of coverage.
  - Trading volume of 440 million metric tons, with turnover of RMB 24.9 billion.
- In 2025 the national ETS was expanded to include steel, cement and aluminum sectors
  - Increasing coverage to annual CO2 emissions of 8 billion metric tons of CO2 and about an additional 1,500 entities, thereby covering approximately half of country's GHG emissions.
- National GHG voluntary emission reduction market was launched in 2024(voluntary carbon market)
  - First methodologies cover 4 types of projects: afforestation carbon sequestration, grid-connected offshore wind power, grid-connected solar thermal power, and mangrove planting.

THANK YOU!

QUESTION AND ANSWER

Emerging Landscape of International Carbon Markets

Kyoko Tochikawa and George Anjaparidze
Carbon Market Experts (Consultants), ADB

This session will focus on various opportunities emerging in the international compliance and voluntary carbon markets that countries may consider as a part of their climate policy architecture and achieving the GHG mitigation goals articulated under their respective nationally determined contributions (NDC).

- *Carbon Market Mechanism(s) under Article 6 of the Paris Agreement*
- *Joint Crediting Mechanism*
- *Voluntary carbon markets*
- *CORSIA*

Carbon Market Basics

Carbon markets are trading systems in which emission reductions are sold and bought as credits or allowances. They are market based-approaches to control GHG emissions by providing economic incentives / liabilities.

- Theoretically acts as a tool for entities to meet GHG reduction obligations flexibly and in the most cost-effective manner
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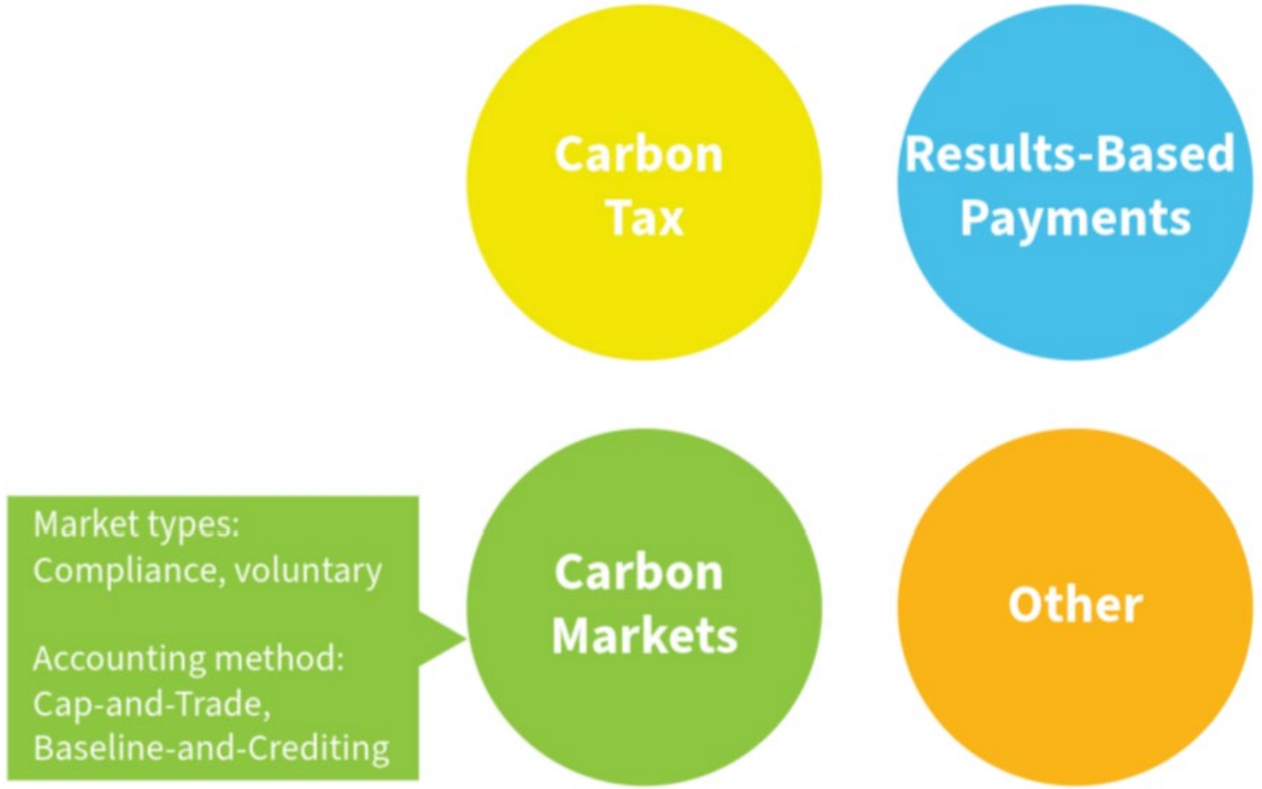

Landscape of Carbon Markets

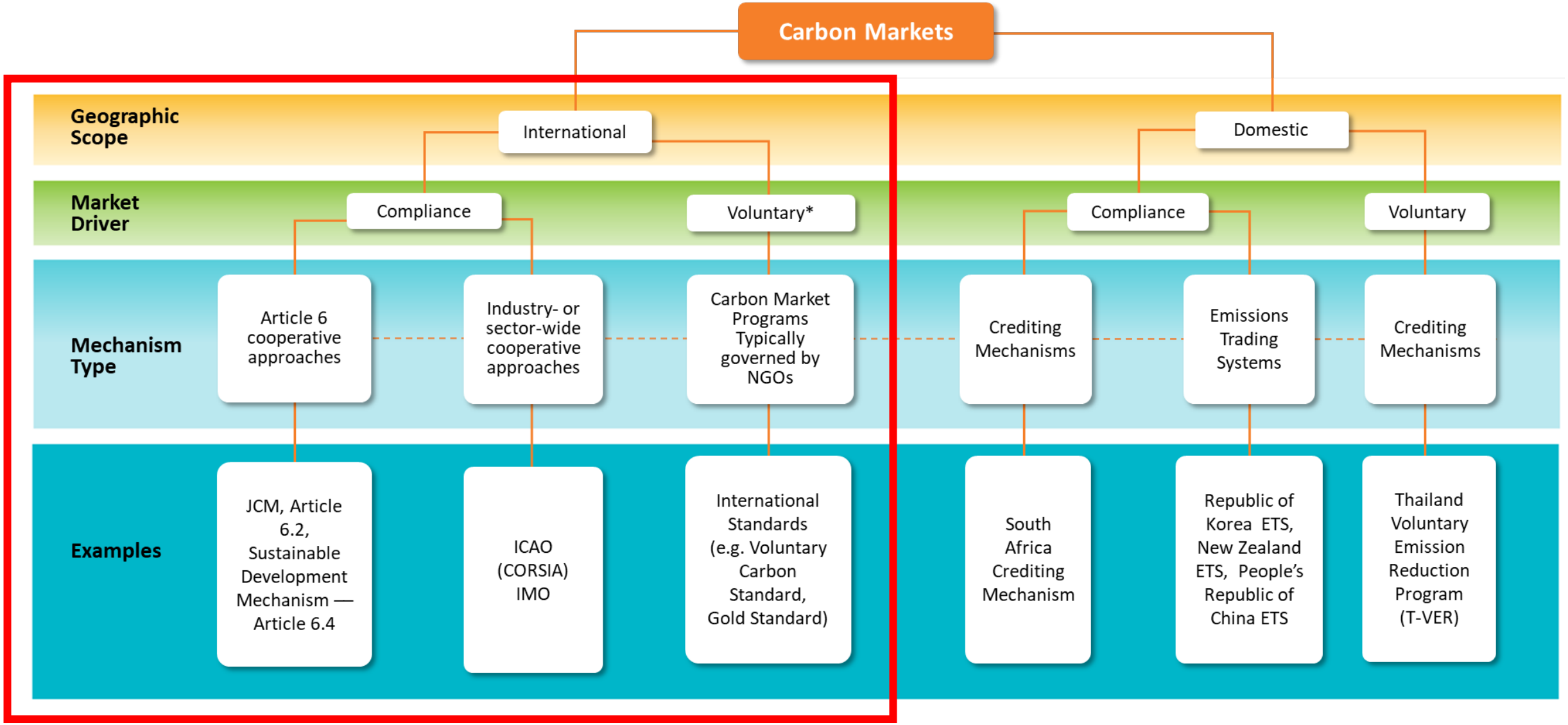

Figure: Asian Development Bank

Rationale for International Carbon Markets

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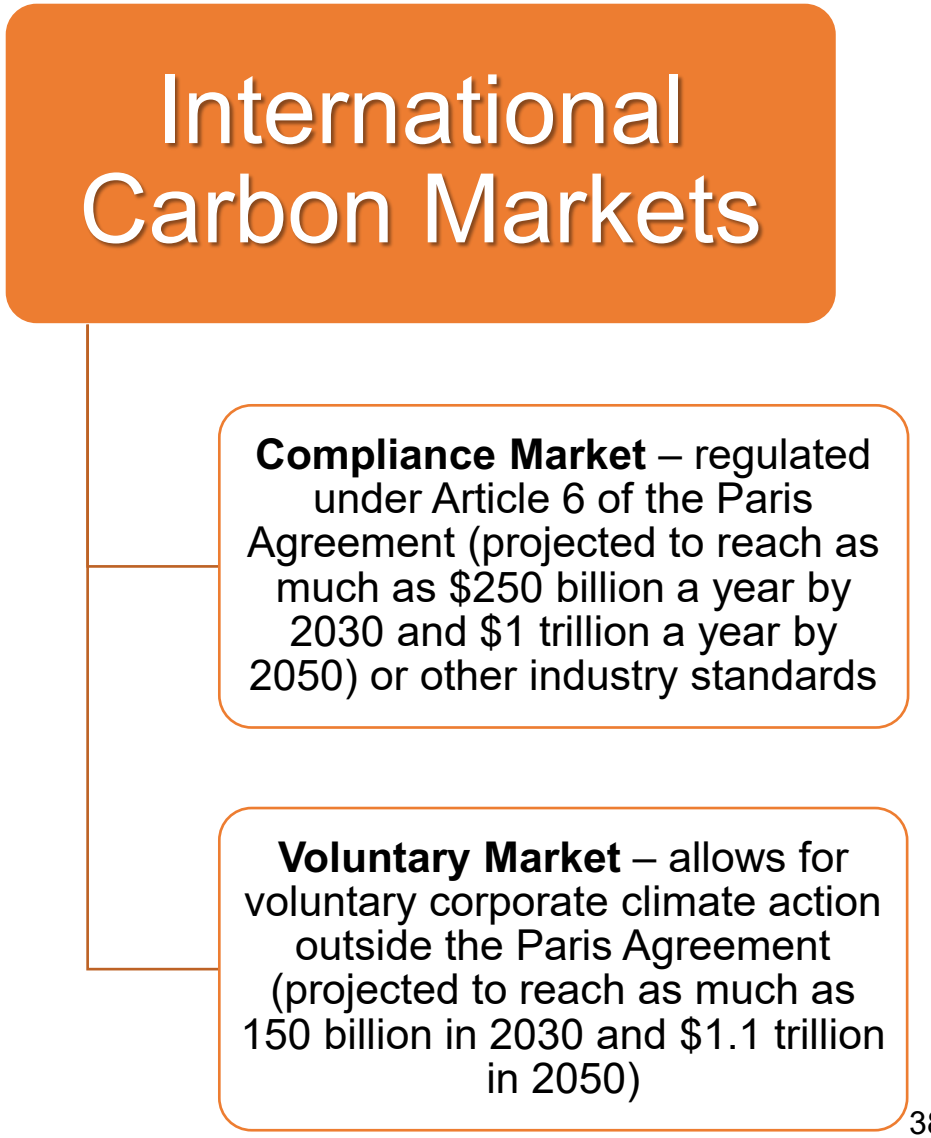
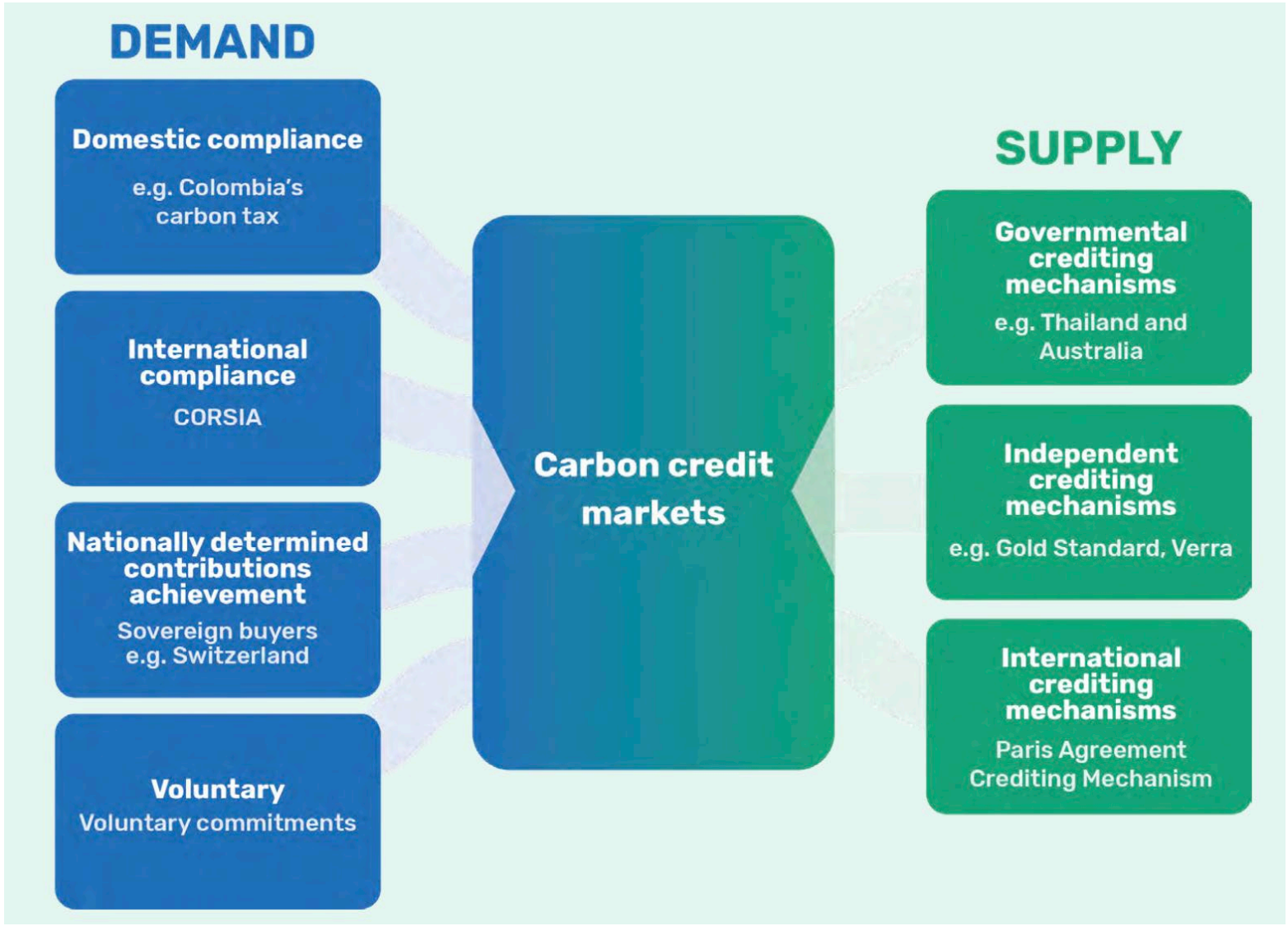
Enhanced Ambition and Sustainable Development	Alongside mobilizing carbon finance, international carbon markets can diffuse advanced low carbon technologies and solutions which are critical in supporting LMICs meet their climate targets cost-effectively.
Diffusing Low Carbon Technologies and Solutions	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.

International Carbon Markets – Why Globally?

- Annual climate finance needs are $3-6 trillion but the current market availability is $600-800 billion.
- The market is currently in its early days and nowhere close to the size needed to meet the financing needs under the Paris Agreement.
- Alongside market uncertainties, elongated negotiations under Article 6, integrity concerns in the voluntary market, upfront financing gap, capacity deficit and regulatory barriers remain a critical bottleneck.
- Despite the challenges, there is a positive outlook to international carbon markets as the demand for carbon credits under both market types will likely increase.
  - There is interest in the VCM among private sector actors, market projections for the VCM are positive and efforts are underway to ensure high-integrity in the VCM.
  - 122 countries have indicated their plans to use Article 6 to achieve their Nationally Determined Contribution (NDC) targets.



Sources of Demand and Supply in Global Carbon Credit Markets

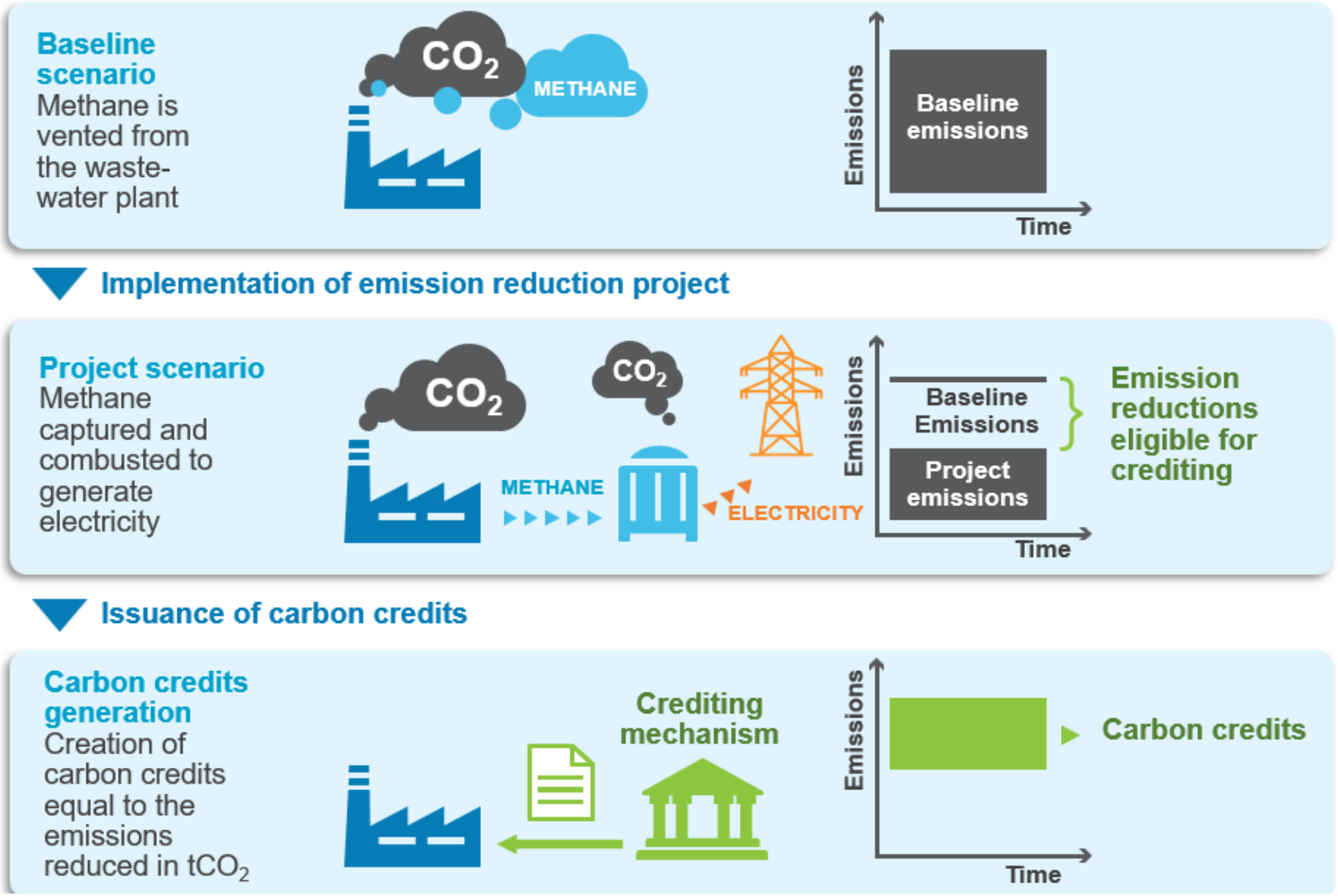


- This is a simplified illustration, and for example, each box is not necessarily mutually exclusive (e.g. Australia and Thailand have different approaches to Article 6)
- There are evolving dynamics as we transition from Kyoto to Paris.

Key Concepts

- Broadly speaking there are two types of carbon: **allowances** and **offsets**, as mentioned earlier. These are often used interchangeably, causing confusion, but are distinct.
- The traded carbon need to be **"real and measurable"** sometimes **"permanent"**.
- Importantly, credits can only be used **once** to offset emissions.
- The fundamental difference between international and domestic trading is the **effect on the NDC**.
- As the Paris Agreement becomes operationalized, carbon markets *including voluntary* ones will become **inherently linked** to the achievement of NDC targets.

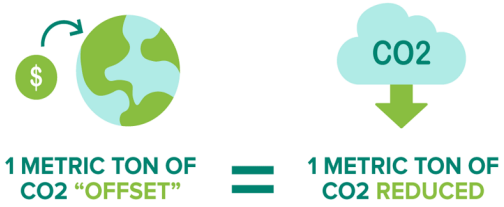
Generation of Carbon Credits – Crediting Mechanism



A **governing body issues credits** to entities that demonstrated having generated qualifying emission reductions.

Examples of baseline-and-crediting system: JCM, CDM, PACM. voluntary (Gold Standard, Verified Carbon Standard/Verra)

Basis of emission reductions (credits) = baseline emissions – project emissions – leakage



Source: Adapted from World Bank 2020

Article 6 of the Paris Agreement

Article 6.2
Cooperative Approaches

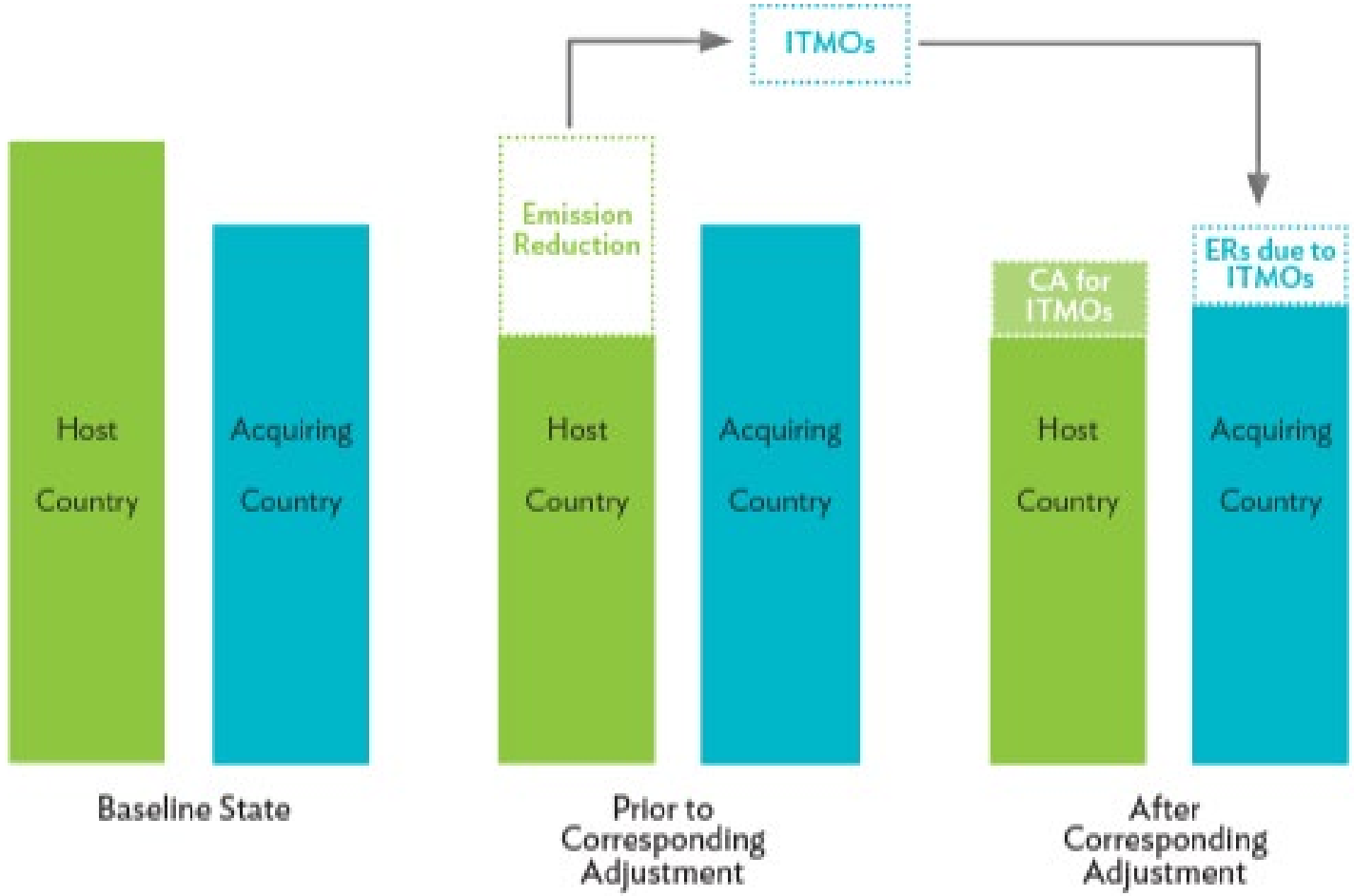
- Involve two or more Parties, through **bilateral** agreements
- **Limited international oversight**
- Includes tracking use of credits for Other International Mitigation Purposes (beyond NDC compliance)
- "Mitigation Outcomes"

Article 6.4
Sustainable Development Mechanism

- Open to all Parties
- **Subject to international rules and oversight**
- Includes tracking use of credits for Other International Mitigation Purposes (beyond NDC compliance)
- "A6.4ERs"

- Carbon markets, with sufficient protocols and MRV, will align with Article 6.
- The Paris Agreement requires from **ALL** participants the ability to **produce national inventories and track progress towards NDCs**

Implication of the Paris Agreement – Corresponding Adjustments



CA = corresponding adjustment, ER = emission reduction, ITMO = internationally transferred mitigation outcome.
Source: Asian Development Bank.

We will come back to this in next session!!

Status of Articles 6.2 and 6.4 Initiatives

Article 6.2: Bilateral Agreements

- As 15 September 2025, there are 102 Bilateral Agreements between 62 different countries (including MOUs).
- A total of 162 pilot projects have been recorded, out of which 133 belong to Japan's Joint Crediting Mechanism (JCM).
- Out of 162 pilots, at least 5 have Authorization Statements.

Article 6.4: Transitioning from CDM

The transition of the Clean Development Mechanism (CDM) to Article 6.4 of the Paris Agreement remains a critical element, particularly for the supply side.

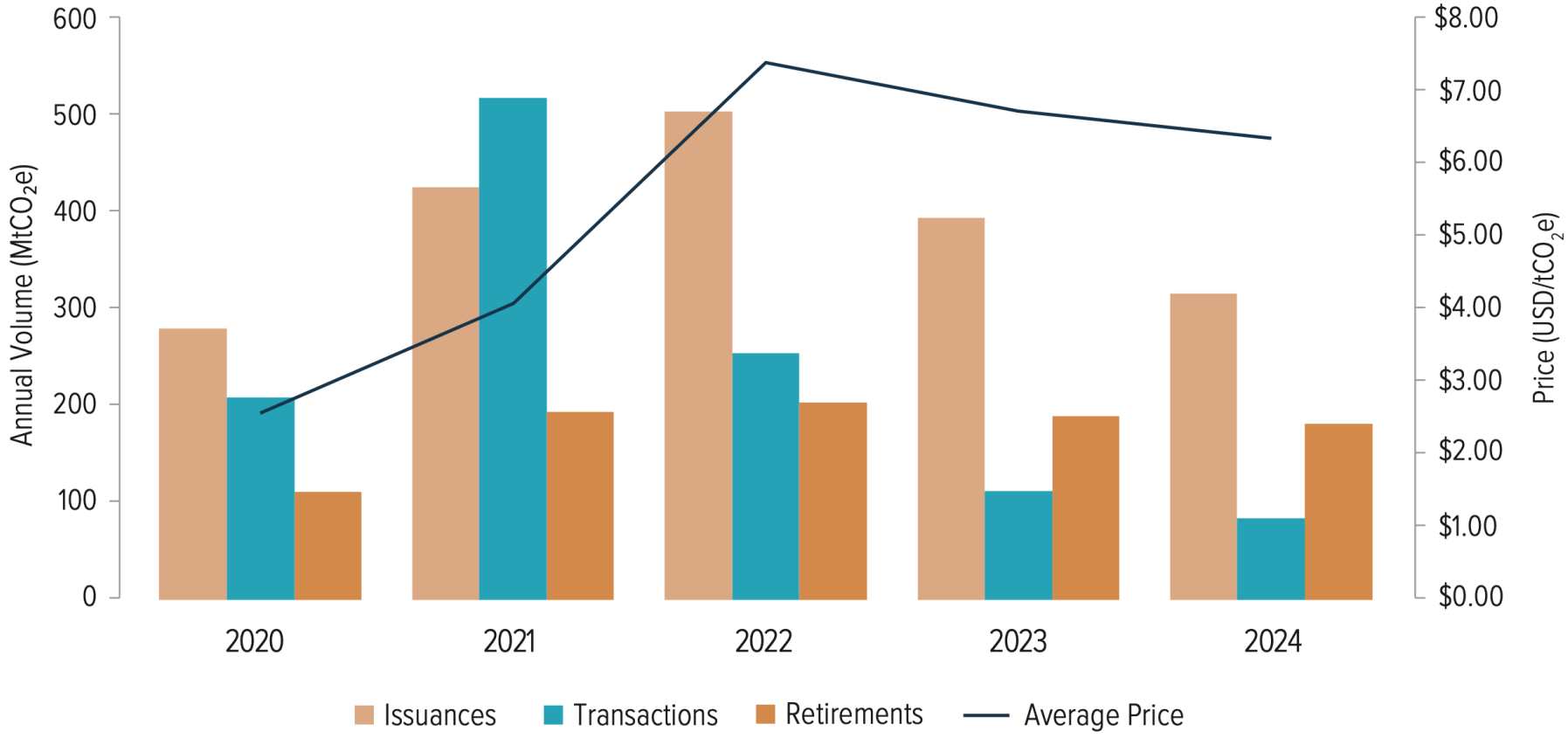
As of 15 September 2025, transition requests were correctly submitted for 1,389 Project Activities, 119 Programmes of Activities, and (together with these PoAs) 954 Component Project Activities (CPA).

Of the potential reductions of around 1.5 billion tonnes of CO2e that eligible activities could generate after transition while using CDM methodologies, this could amount to more than 900 million tonnes (60%).

In total 113 Parties have communicated their Designated National Authority to the UNFCCC secretariat.

Source: United Nations Environment Program, Copenhagen Climate Centre.

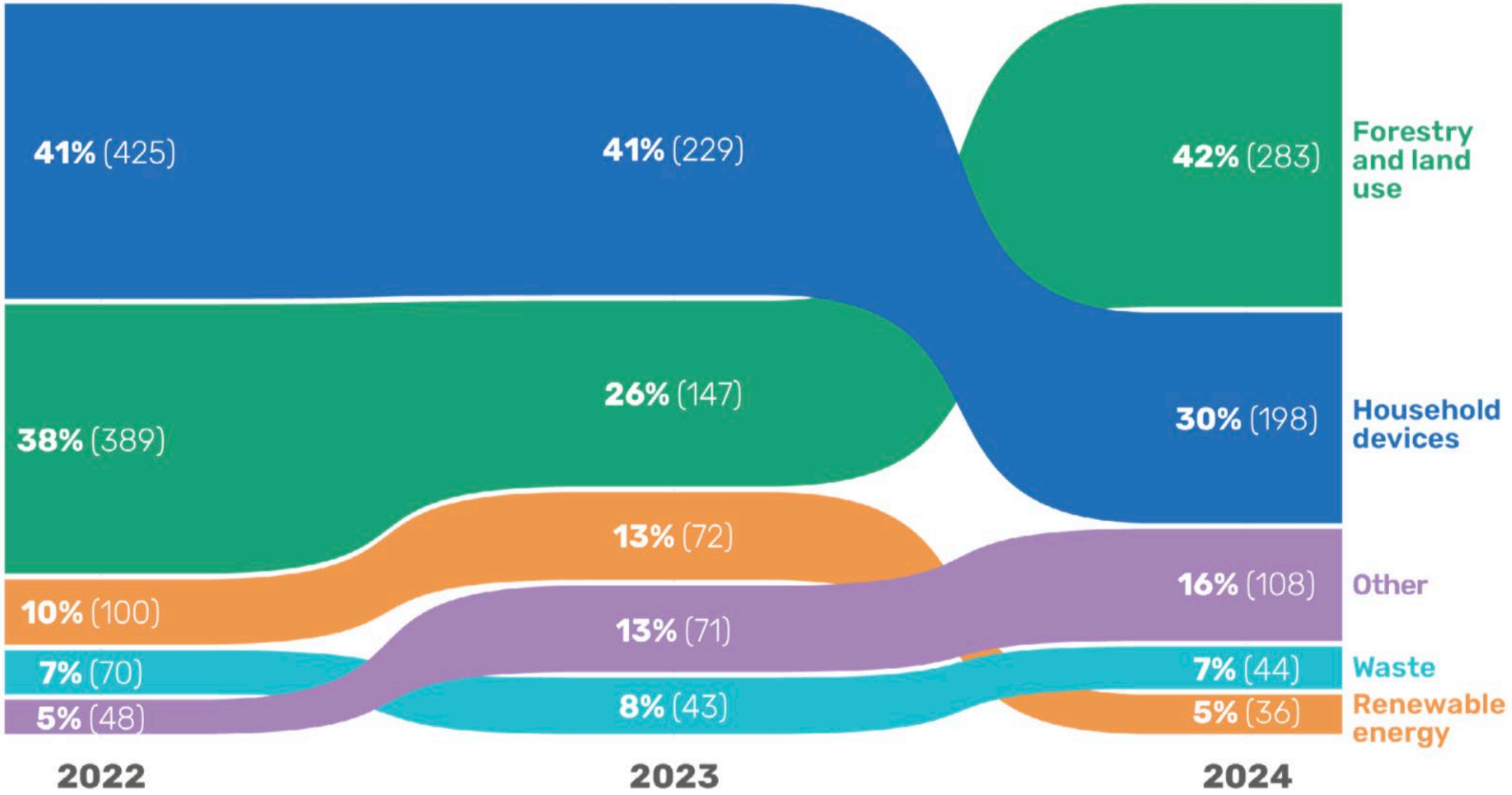
Voluntary Carbon Market Issuances, Transactions, Retirements, and Average Price



Note: This figure includes data on credit issuances and retirements from American Carbon Registry (ACR), Archictecture for REDD+ Transactions (ART), BioCarbon, Climate Action Reserve (CAR), Clean Development Mechanism (CDM), Cercarbono, Global Carbon Council, Gold Standard, Plan Vivo, and Verified Carbon Standards (VCS) registries. Transaction volume and average price data are sourced from actual transaction data provided by EM's Respondents.

Forest Trends' Ecosystem Marketplace. 2025. State of the Voluntary Carbon Market 2025. Washington DC: Forest Trends Association.

New Project Listings in Independent Crediting Mechanisms by Category



Voluntary Market Concerns

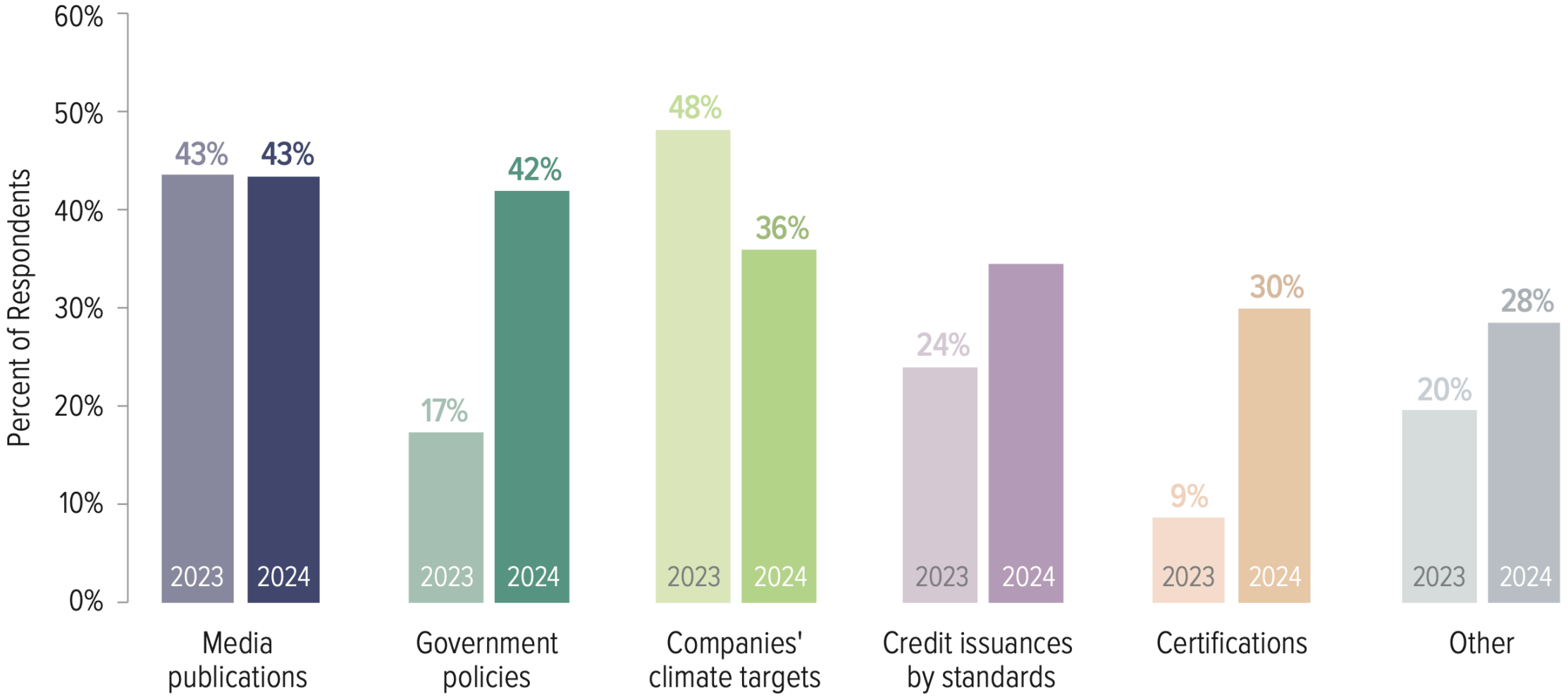
What do buyers care about?

- Branding value
- Reputational risk
- Delivery
- Simplicity
- Clean transactions

What does the global community care about?

- Additionality
- Tracking and transparency
- Avoiding double counting
- Equity
- Permanence
- No leakage

Market Perception on External Factors Influencing Credit Sales



Forest Trends' Ecosystem Marketplace. 2025. State of the Voluntary Carbon Market 2025. Washington DC: Forest Trends Association.

International Compliance Demand

- Carbon Offsetting and Reduction Scheme for International Aviation was adopted in 2016 **to address CO2 emissions from international aviation**.
- CORSIA has applied to international aviation since 1 January 2019 when all airlines were required to **report their CO2 emissions on an annual basis**.
- From 1 January 2021, international flights became **subject to offsetting obligations**.
- Due to COVID-19 pandemic, **the baseline used for CORSIA was 2019 emissions** level for the period of 2021-2023 due to the unprecedented circumstances facing the industry.
- In October 2022, ICAO set **85% of 2019 emissions as CORSIA's baseline** from 2024 onwards.

HARVARD PROJECT ON CLIMATE AGREEMENTS

VIEWPOINTS

The Extraordinary Climate Agreement on International Aviation: An Airline Industry Perspective

George Anjaparidze

October 2019

Summary

The Carbon Offset and Reduction Scheme for International Aviation (CORSIA), adopted by the International Civil Aviation Organization (ICAO) in October 2016, addresses the growth in total CO_2 emissions from international aviation above 2020 levels. Prior to the scheme, there was a high risk that states would introduce climate policies that would lead to a costly patchwork of overlapping and distortive measures. The International Air Transport Association (IATA) played a crucial role in developing workable solutions that helped secure a global approach to addressing CO_2 emissions from international aviation. (ICAO is an international governmental organization, and IATA is a business association.)

No other sector has a climate policy that places an absolute global cap on net CO_2 emissions. A key design feature of CORSIA is that it incorporates the concept of shared responsibility for managing CO_2 emissions. The offset responsibility of individual carriers is, initially in full and later in part, determined by the industry CO_2 growth factor. Furthermore, the scheme is phased in a way that addresses the special circumstances and respective capabilities of developing countries while ensuring uniform treatment of aircraft operators.

This paper has six sections. It starts by introducing the key relevant characteristics of air transport. The second section provides historical context in which the industry climate change strategy was developed. The third section provides an overview of the technical work of the IATA Climate Change Task Force. The fourth section highlights the key industry decision points taken by IATA members. The fifth section explains the key design features of CORSIA as adopted by ICAO. The last section highlights next steps for CORSIA implementation.

Viewpoints present policy proposals, considered opinions, and commentary by distinguished policymakers, leaders from business and non-governmental organizations, and scholars. The Harvard Project on Climate Agreements does not advocate any specific climate-change-policy proposals. Statements and views expressed in *Viewpoints* are solely those of the author(s) and do not imply endorsement by Harvard University, the Harvard Kennedy School, or the Harvard Project on Climate Agreements.

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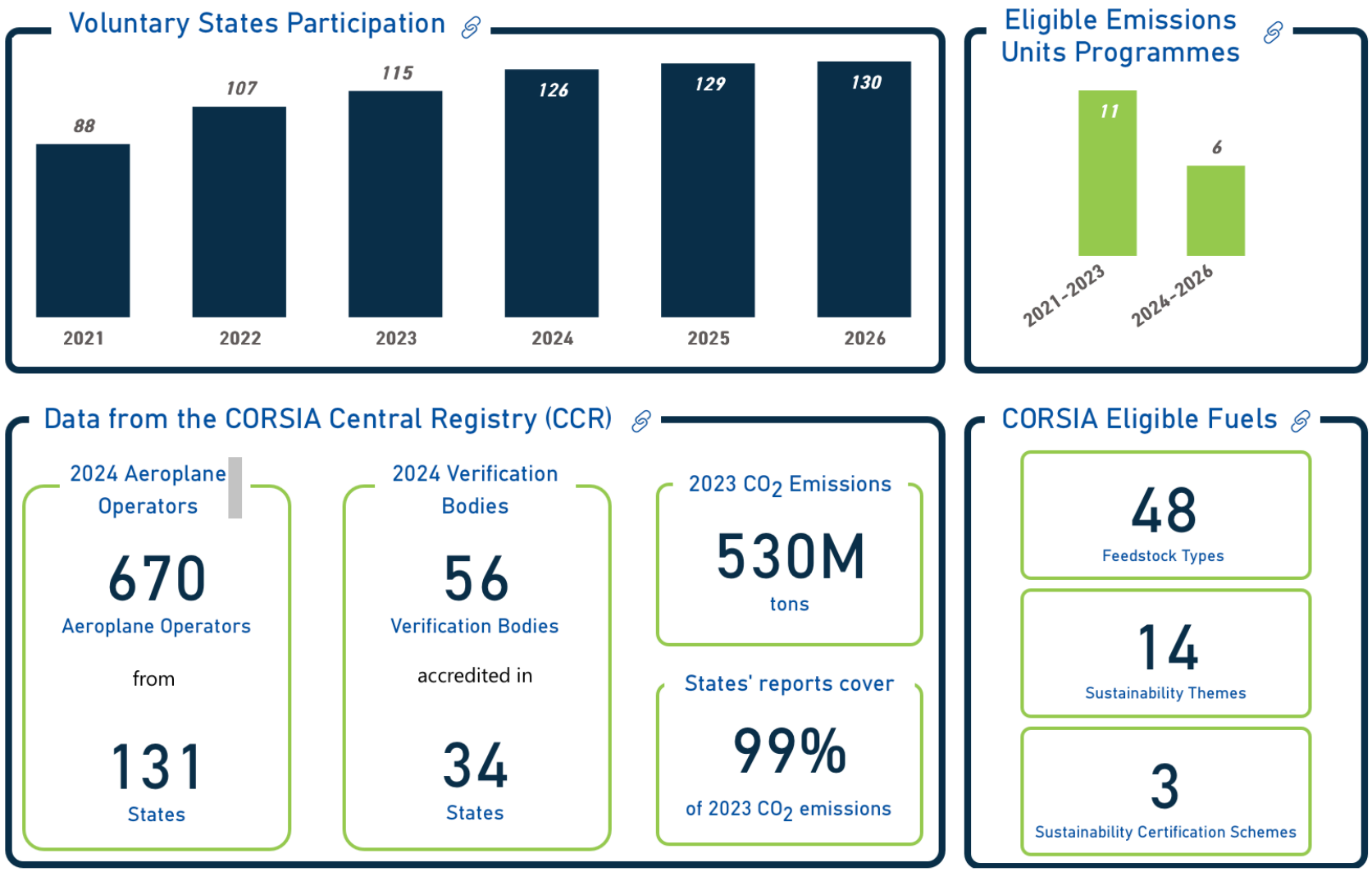
CORSIA Implementation Status



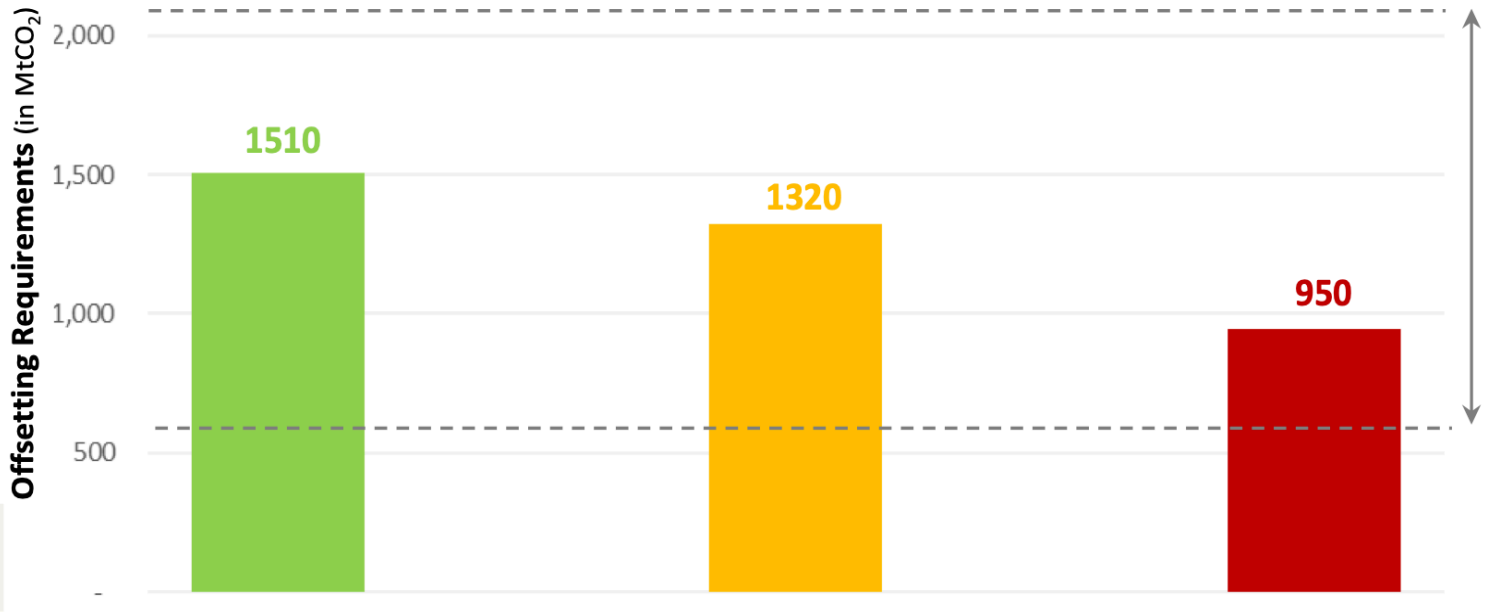
The information presented here is based on the currently applicable editions of the ICAO documents for CORSIA implementation directly referenced in Annex 16, Volume IV and available on the ICAO CORSIA public website.

Source: International Civil Aviation Organization website accessed 28 September 2025.

CORSIA Offset Demand

- **Cumulative offsetting requirements (O.R.) from 2024 to 2035 could range from ≈950 to 1500 $MtCO_2$.**

All Phases
(2021-2035)



Note. – Average results from 100 runs of stochastic CORSIA model.

Scenario Assumptions	High	Mid	Low
CO_2 Emissions Trends	ICAO-CAEP/13 Traffic	ICAO-CAEP/13 Traffic	ICAO-CAEP/13 Traffic
CORSIA Baseline (2021-2023)	2019 (only)	2019 (only)	2019 (only)
CORSIA Baseline (2024-2035)	85% of 2019	85% of 2019	85% of 2019

Range of estimates from June 2022 analyses*.
i.e., *"Under an 85% of 2019 baseline for 2024-2035, O.R. could range from 600 to 2100 $MtCO_2$".*

* Note: 85% baseline was evaluated in the June 2022 CORSIA analyses. However, these analyses did not include the changes to Sectoral/Individual shares agreed at Assembly 41, leading to minor differences in total O.R.

Source: International Civil Aviation Organization, Committee on Aviation Environmental Protection, Technical Assessment in Support of the 2025 CORSIA Period Review, Presented in June 2025 at the 235th Session of the Council.

Independent Crediting Programs and CDM in CAREC

Independent Crediting Programs and CDM in China

Georgia: Chorokhi Hydro Power Plant Project (Verra VCS Project 1485)

- **Greenfield hydro power project** located on Chorokhi river, in Batumi province in Georgia.
- Total installed capacity planned is 98.7 MWe, with a predicted net power supply to grid of 410,800 MWh per annum.
- Ex-ante estimated **emission reduction is 225,312** tonnes CO2e per year.
- First, attempted to register under Clean Development Mechanism but several factors including linkage with Türkiye created complications; subsequently project was **registered with Verra Verified Carbon Standard**.
- **Emission reductions achieved in both Georgia and Türkiye** based on methodology for grid-connected electricity generation from renewable sources.
- **Creates environmental benefits** through supply of clean energy and supports **positive socioeconomic outcomes** through supporting employment.

India: Sustainable Agricultural Land Management Project (Verra VCS Project 3174)

- Location: Wayanad district of **Kerala**, India
- Estimated annual GHG emission reductions and removals are 26,369 tCO2e per year and 776,971 tCO2e for life-time.
- Project aims to **increase the capacity of soil to sequester carbon** and **enhance nutrients** through mulching and integration of compost and vermicompost manure.
- Climate change mitigation outcomes are achieved through:
  - **Reduction of nitrous oxide emissions** by replacing the usage of synthetic chemical fertilizer with environmentally friendly organic fertilizers.
  - **Enhancement of soil organic carbon** by addition of farmyard manure, composts, crop residue and mulch.
  - **Avoidance of crop residue burning**.

Source: Verra, Verified Carbon Standard, Registration Document 2022.

THANK YOU!

QUESTION AND ANSWER

Making Strategic Choices on International Carbon Markets

Kyoko Tochikawa
Carbon Market Expert (Consultant), ADB

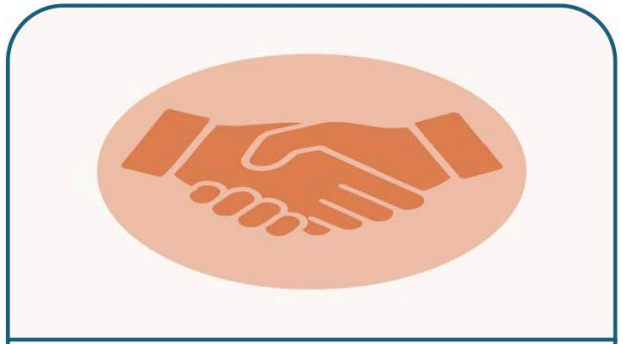
This session will address strategic considerations and choices that host-country governments need to address, to ensure that national strategic priorities are reflected in international carbon market participation.

International Carbon Finance

Common types of carbon finance

COMPLIANCE CARBON MARKET

Linked to legal obligations



VOLUNTARY CARBON MARKET

Supports voluntary targets

RESULTS-BASED PAYMENTS

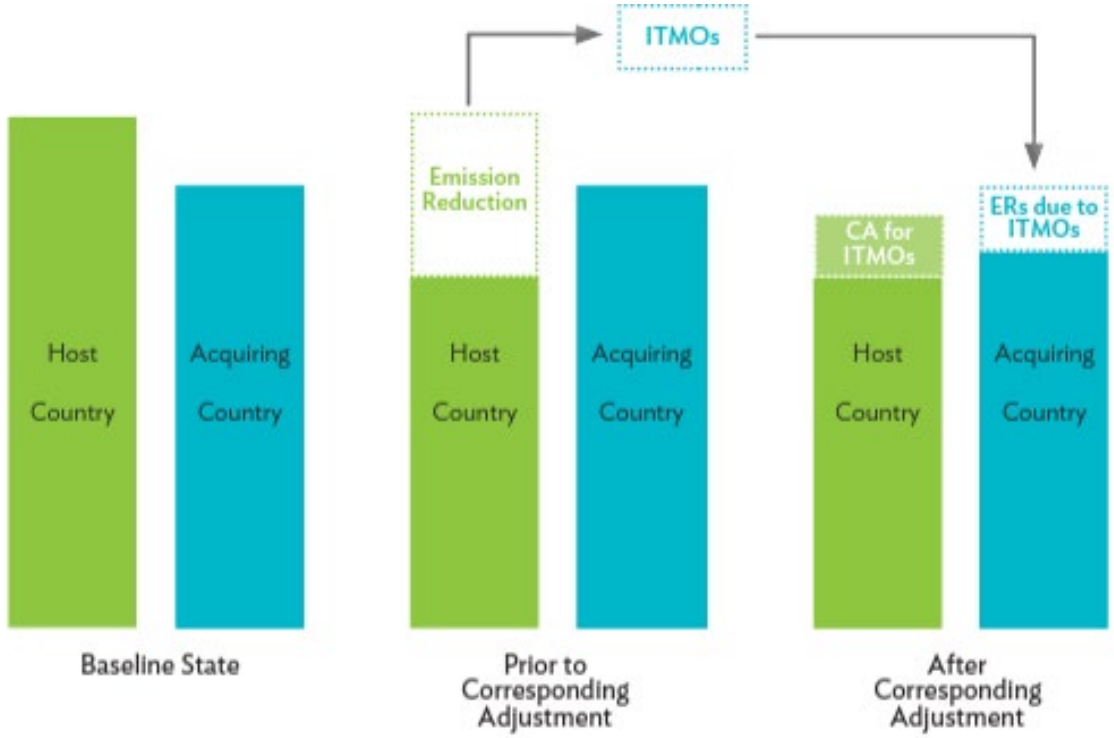
Payments linked to emission reductions

- Carbon finance can mean different things to different people.
- What support (financial, institutional capacity, legal, technology or combination) helps most?
- If financial, is it upfront or payment-against-delivery?

Benefits of International Carbon Finance

Carbon accounting under the Paris Agreement

- Critical distinction: The existence of NDCs and national commitments means that the logic behind taking part in international carbon trading is now different – **there is an opportunity cost** to exporting credits abroad
- The existence of NDC targets and national inventories for all countries, a common currency (=carbon) and the need for Corresponding Adjustments to internationally transferred mitigation outcomes (ITMOs) implies a **shifting role for voluntary carbon markets**



CA = corresponding adjustment, ER = emission reduction, ITMO = internationally transferred mitigation outcome.
Source: Asian Development Bank.

Article 6.2 or Article 6.4?

Key difference between the Kyoto Protocol's CDM (and Article 6.4) and Article 6.2 of the Paris Agreement is the latter being essentially designed for **decentralized governance**. This necessarily requires **greater oversight** from each Party.

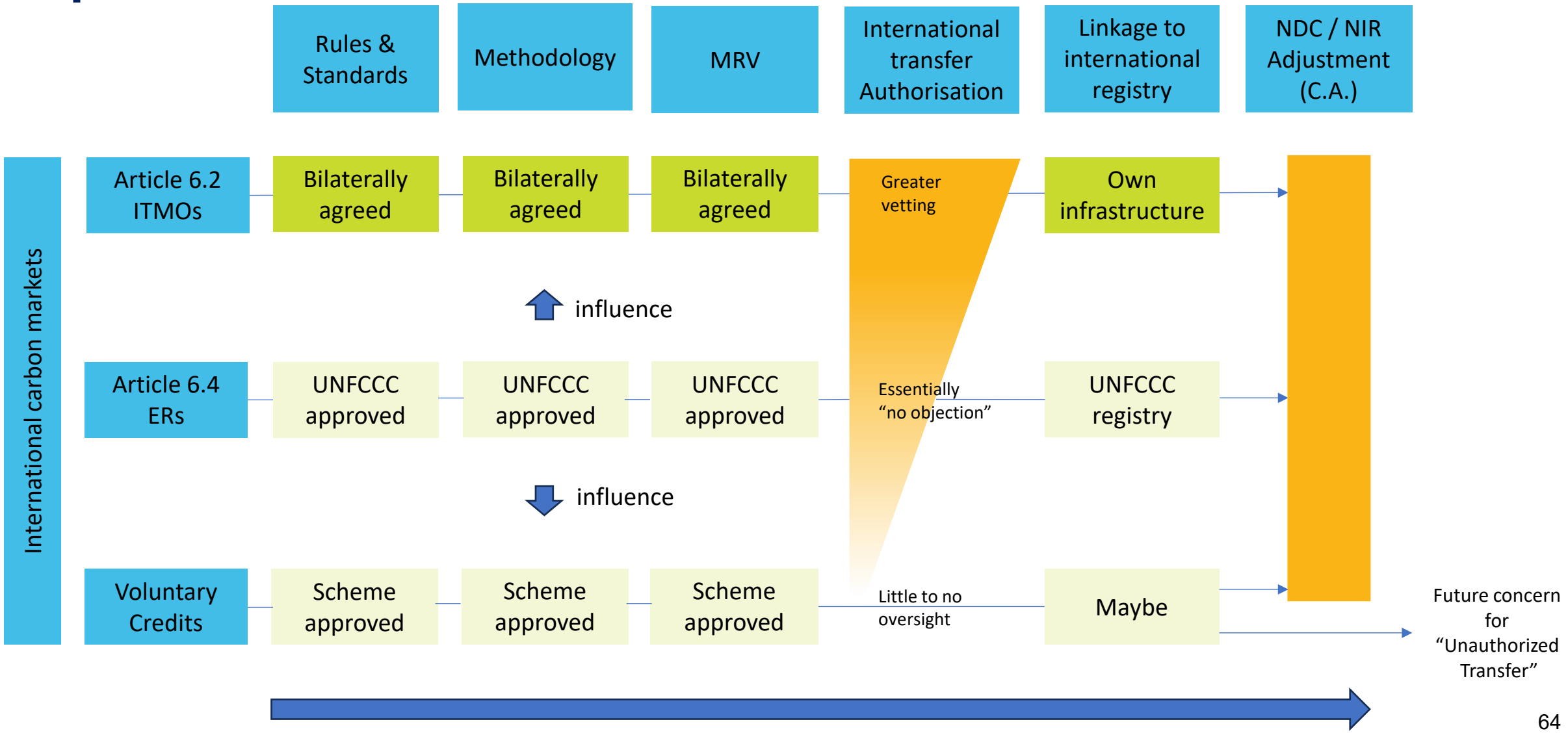
Some essential components:

- Institutional framework
- Implementation procedures
- Infrastructure
- Capacity building, inter-ministerial coordination, stakeholder engagement

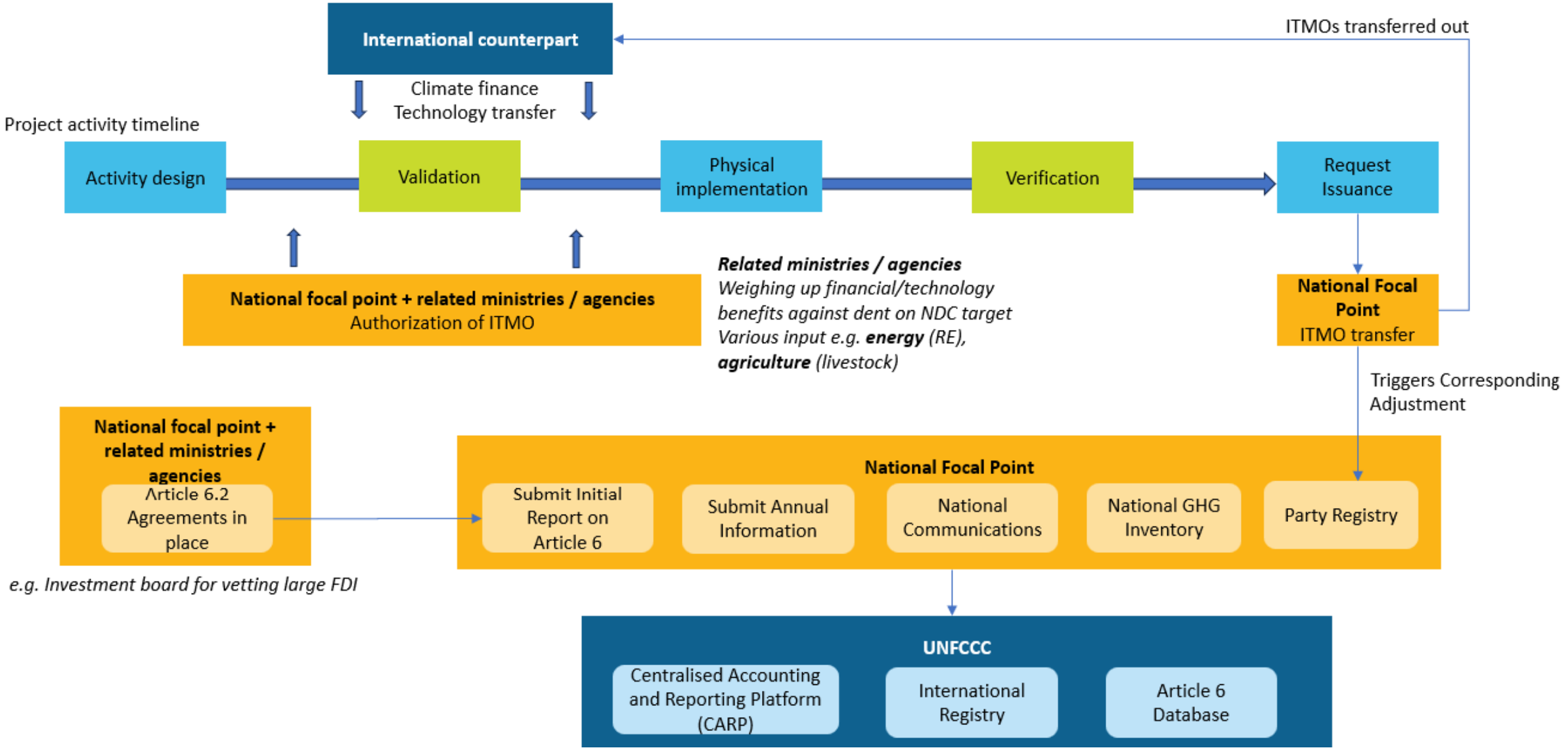
Two important points to remember:

- No need to reinvent the wheel for the sake of it.
- Domestic level governance boils down to each country's climate strategy.

Article 6.2 or Article 6.4? Role of Government Simplified



Domestic Requirements of Article 6.2 Simplified



Ensuring Integrity in International Carbon Market Participation

- While participation in Article 6.2 international carbon markets offers a high level of autonomy and flexibility to participating parties, care must be taken to ensure the integrity of the system so it can contribute effectively to NDC targets. In this sense a functional registry is crucial.
- Environmental integrity including the avoidance of double counting and double claiming is essential for a **stable market**.
- Also in that it informs government decision on what activities are best enabled through carbon markets, a strong domestic infrastructure is important.
- By no means should Article 6.2 flexibility be seen as a blank cheque for carbon credits. Instead, international carbon markets should be recognized as providing **autonomous pathways** to a host country government, to channel international support to activities that closely align with its national priorities.

Transaction costs – why they matter

Costs beyond and incremental to project implementation, specifically to enable and execute international carbon trading

Key drivers of government cost:

- MRV framework (6.2)
- Authorization framework (6.2 & 6.4 but different burden)
- Domestic & international reporting requirements (6.2 & 6.4)
- Registry infrastructure (6.2 & 6.4)
- Capacity building, inter-ministerial coordination, stakeholder engagement, legal overhead

Implications:

- Higher for Article 6.2 (bilateral, decentralized – can “copy”)
- Lower for Article 6.4 (centralized, standardized – but more rigid)
- VCM varies by standard and integrity requirements, of course higher is more cost

Quality and Price – Beyond Cash Cost

Not just cash cost:

Quality determines credibility, price signals integrity

Quality matters because

- High-integrity credits = credibility + market access
- Poor quality = reputational risk + stranded assets

Determinants of quality

- Additionality (“ambition”), permanence, MRV robustness, safeguards
- Article 6 authorization for NDC use (or non-NDC for voluntary)

Price implications

- Higher quality = higher price (e.g., *theoretically* A6-authorized > generic VCM).
- Price volatility driven by integrity standards and co-benefits (VCM can be stronger in this regard)

Strategic takeaway

- Cheapest credit ≠ best choice
- Balance cost with integrity and long-term strategic goals

International Co-operation

Possibilities

- Shared infrastructure (e.g., MRV systems, registries) → cost efficiency
- Regional alignment (e.g., similar but not same approach to standardized baselines) can reduce risk of fragmented standards → credibility
- Coordinated Article 6 strategies for participation in international markets → greater negotiation clout
- Knowledge transfer (e.g., joint capacity building) → institutional efficiency

CAREC context

CAREC Climate Change Vision:

"A Region of Sustainable Development, Shared Prosperity, and Climate-Resilience" commits to cooperate across borders for mutually beneficial climate and development outcomes.

Readiness Checklist

Institutional & Legal

- National Focal Point / Designated National Authority
- Legal basis for Article 6 participation and authorization
- Clear roles (e.g. ITMO authorization)

Infrastructure

- MRV system operational
- Registry operational

Policy & Strategy

- Alignment with NDC and sectoral priorities
- Decision framework for corresponding adjustments

Capacity & Processes

- Trained staff for reporting and compliance
- Templates for agreements, authorizations, and reporting

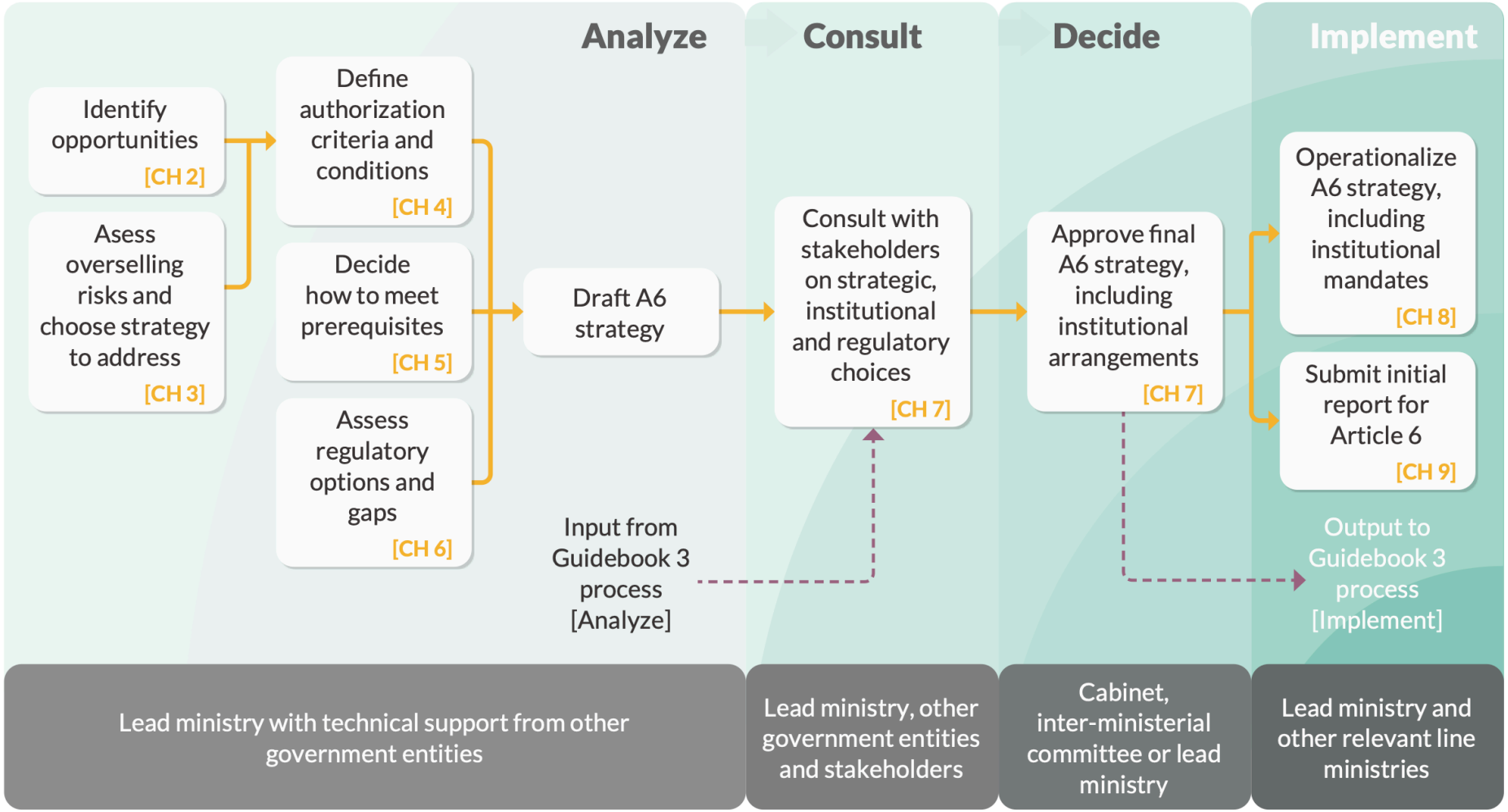
Market & Risk Management

- Integrity safeguards (additionality, permanence)
- Pricing and revenue-sharing policy
- Risk mitigation for reputational exposure

Optional Regional Leverage

- Shared MRV or registry infrastructure
- Regional knowledge-sharing platforms

Steps in Developing and Implementing an Article 6 Strategy



Source: Supporting Preparedness for Article 6 Cooperation, Guide 2 Developing an Article 6 Host Party Strategy, Figure 10.

Citation: Heras, Benjamin; Isakova, Irina; Spalding-Fecher, Randall; Hopkins, Mark and Haselip, James. 2023. Developing an Article 6 host party strategy. SPAR6C Guide 2. A GGGI publication.

Carbon Strategy : Thailand

- Thailand has had an active carbon credit market. It is well known for its domestic T-VER market and early participation in Article 6 activities including Bangkok's E-Bus Program (A6.2 scheme).

- At the same time the market is seen as needing a revamp.
  - Between 2016 and 2024, circa 3.5 mtCO2 were purchased domestically compared to the circa 20.5mtCO2 generated.
  - There are new NDC commitments and priorities in the Paris Agreement era.
  - External pressures such as EU tax implications.

Image source: Klik Foundation

Carbon Market Strategy : Thailand

- The Stock Exchange of Thailand is preparing the launch of a new carbon credit markets in 2025.

- Thailand also has announced plans to implement a carbon tax in 2025 where:
  - A draft ministerial regulation was approved in January 2025 **to integrate the carbon tax into the existing excise tax** linked to GHGs – namely oil tax – to avoid stressing consumers.
  - It is also planned to be used to **reduce Carbon Border Adjustment Mechanism (CBAM) fees** that the EU will charge.
  - Finally, by 2030 it is expected that a mandatory carbon pricing mechanism in the form of an ETS will be implemented with a proposed median price of THB200/tCO2 (~USD5.88). Under the proposed system, companies will be able to **offset up to 15%** of the GHG emissions with carbon credits.

Downside of International Trading in Paris Era

Opportunity cost of exporting credits

- Every credit sold abroad = less available for NDC compliance – different to Kyoto!
- Particularly care when obligation is long term

Risk of selling "low-hanging fruit"

- Early, cheap mitigation options gone → higher marginal cost later
- May undermine long-term domestic decarbonization strategy including attainment of unconditional targets

Complexity and compliance burden

- Corresponding adjustments
- Increased reporting obligations

Market and reputational risks

- Integrity concerns (double counting, additionality, unauthorized transfer) can damage credibility
- Price volatility and uncertain demand outlook

Strategic takeaway

- Policymakers need to be keenly aware that there is an opportunity cost under Paris – no decision needs to be made now or permanently

Recap Decision Points

Should we engage in international carbon trading?

- Do we need external finance or technology or…?
- Can we afford the opportunity cost of exporting credits?

Which mechanism suits our context?

- Article 6.2: Bilateral, flexible, but requires strong domestic infrastructure (can rely on strong mechanisms like JCM)
- Article 6.4: Centralized, standardized, less domestic burden, but not fully operational and more rigid

Are we ready to authorize voluntary credits for NDC use?

- Do we have MRV and registry systems in place?
- Are we institutionally ready to apply corresponding adjustments for voluntary carbon?

What sectors or activities should we prioritize?

- Based on mitigation potential, co-benefits, and strategic alignment

How do we ensure integrity and transparency?

- Environmental integrity (additionality, permanence, standards)
- Governance (clear roles, public reporting)

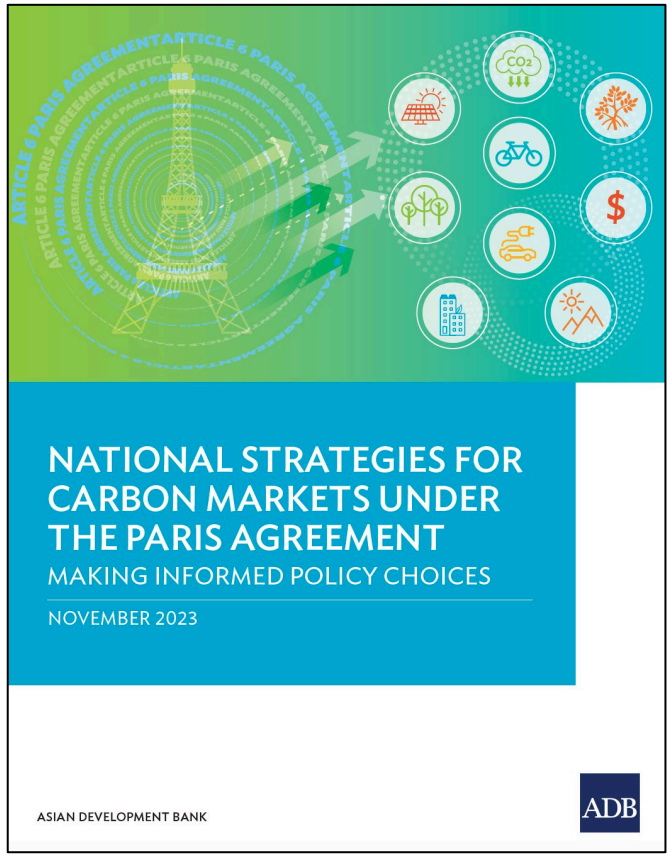
What partnerships or regional cooperation can support us?

- Bilateral agreements, pooled MRV, shared infrastructure (e.g., CAREC)

Other considerations?

- International developments e.g. border carbon tax

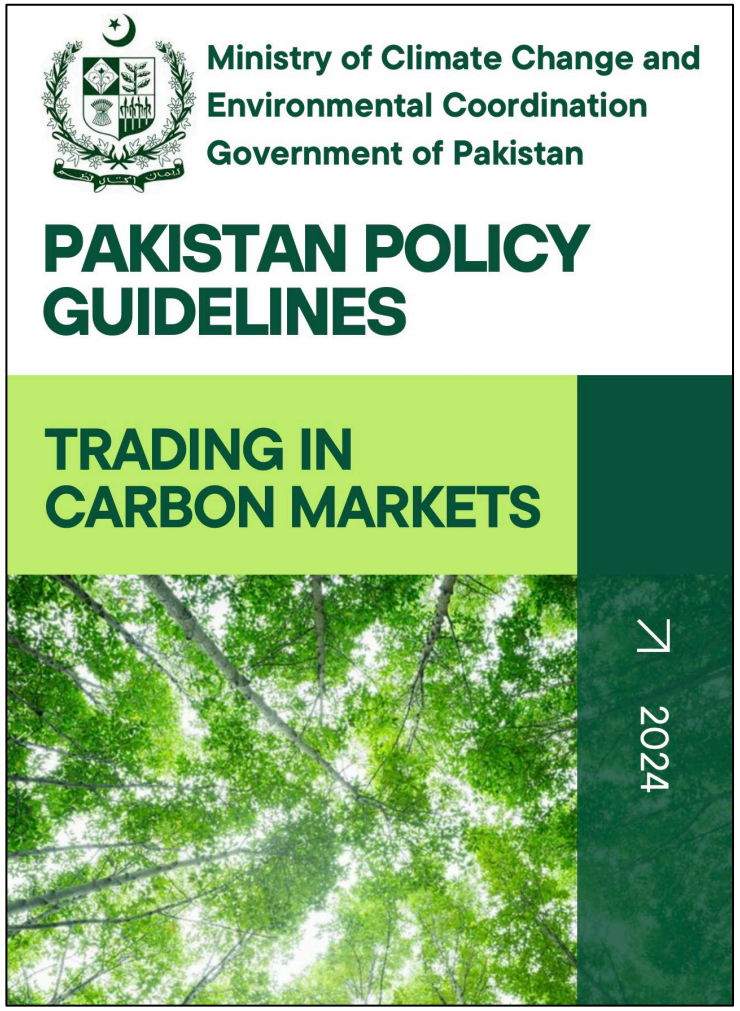
Article 6 Support Facility 2023 Knowledge Product



National Strategies for Carbon Markets under the Paris Agreement — Making Informed Policy Choices

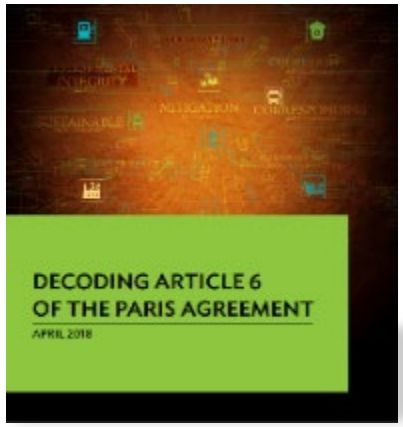
This report analyzes how carbon markets can be designed to help economies reach ambitious emission reduction goals and generate the financing needed to scale up climate action and build a resilient future. Designed as a framework for policymakers, it examines the current state of international and domestic carbon markets, delves into legal and policy issues, and explains how informed policy choices can be made when designing national strategies for carbon markets under the Paris Agreement. It assesses the opportunities and challenges with carbon markets, and shares insights on how high-integrity carbon markets can underpin the transition towards a low-carbon economy as countries transition towards net zero.

Pakistan's Carbon Market Policy Guidelines



- **Guidelines** for developing Pakistan's carbon markets.
- **Key pillars** consist of three overarching climate goals.
- **Approval process** covering project preparation and authorization, standards for project registration, guidelines for priority sectors, and parameters of project qualification.
- **Implementation mechanism** providing clarity on oversight and governance, obligatory fees, support and guidance.
- **Approval requirements** for carbon credit projects.
- **Letter of intent** terms and conditions.

Article 6 Support Facility
Knowledge Products – Thought Leadership



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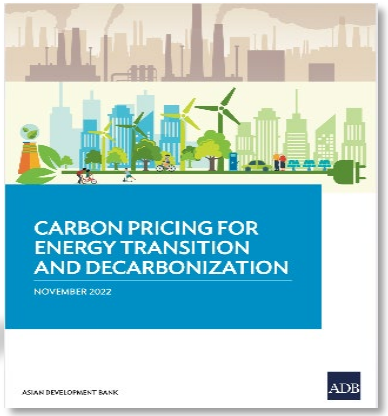

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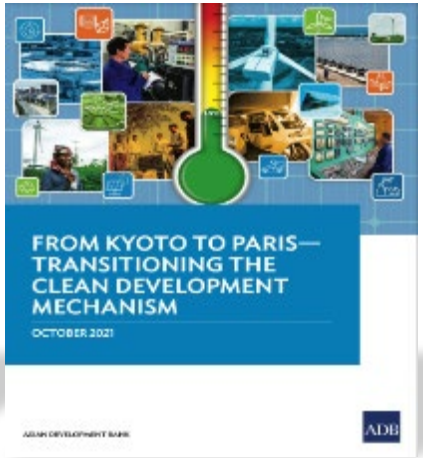

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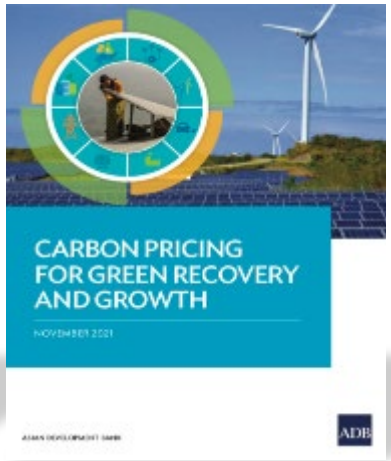

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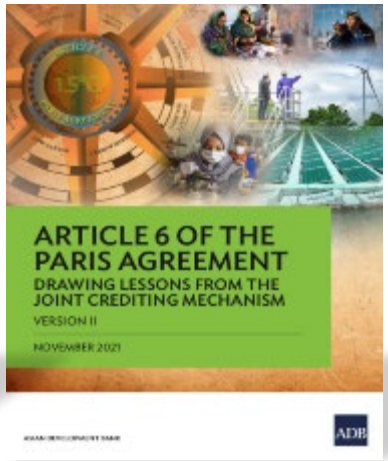

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THANK YOU!

QUESTION AND ANSWER