GLOBAL KNOWLEDGE FORUM 2026
ON CARBON PRICING & MARKETS

May 18 - 19, 2026

Suntec Convention Centre
Singapore

WORLD BANK GROUP

WORLD BANK GROUP Climate Change | PMI | Ci-Dev Carbon Initiative for Development | BioCarbon Fund Initiative for Sustainable Forest Landscapes | Forest Carbon Partnership | TCAF

WELCOME

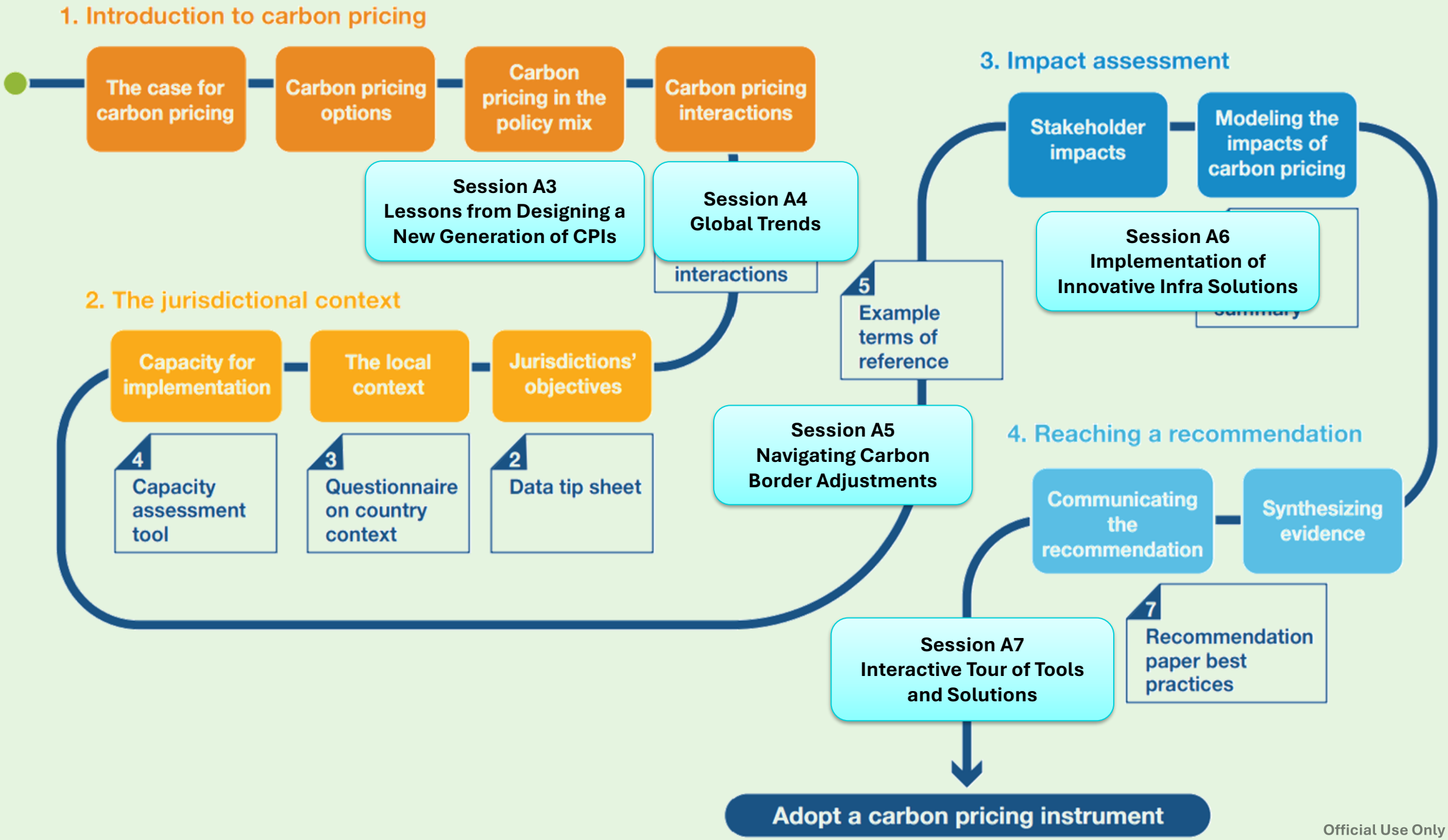
Advancing Carbon Pricing in a Challenging Global Context

Katia Daude Goncalves
Country Manager, Singapore, World Bank Group

Luis Tineo
Manager, Policy & Analytics for Adaptation and Mitigation Finance, World Bank Group

SESSION A1
MINDING THE GAPS

Understanding country-level needs: Where are we now and where are the gaps?



AGENDA DAY 1

ADVANCING CARBON PRICING

→	**09:00 am | WELCOME**
A1	**09:20 am | MINDING THE GAPS >** Country-level needs
A2	**10:20 am | PARTNERSHIPS >** How is PMI helping?
A3	**10:50 am | COUNTRY EXPERIENCE >** Lessons learned
	11: 50 am | LUNCH
A4	**12:50 pm | GLOBAL TRENDS >** Key developments in carbon pricing
A5	**01:50 pm | FUTURE SHOCKS >** Border carbon adjustment
A6	**03:15 pm | INNOVATION >** Infrastructure solutions
A7	**04:00 pm | SOLUTIONS SHOW & TELL >** Knowledge marketplace
A8	**05:00 pm | KEY TAKEAWAYS**
	6:00 pm | RECEPTION

SESSION A2
PARTNERSHIP

How is the PMI partnership helping?

Pierre Guigon
Program Manager, Partnership for Market Implementation, World Bank Group

A growing implementation community

Carbon pricing and markets are becoming a mainstream implementation agenda

Should we do it?

Delivering NDCs & LTS

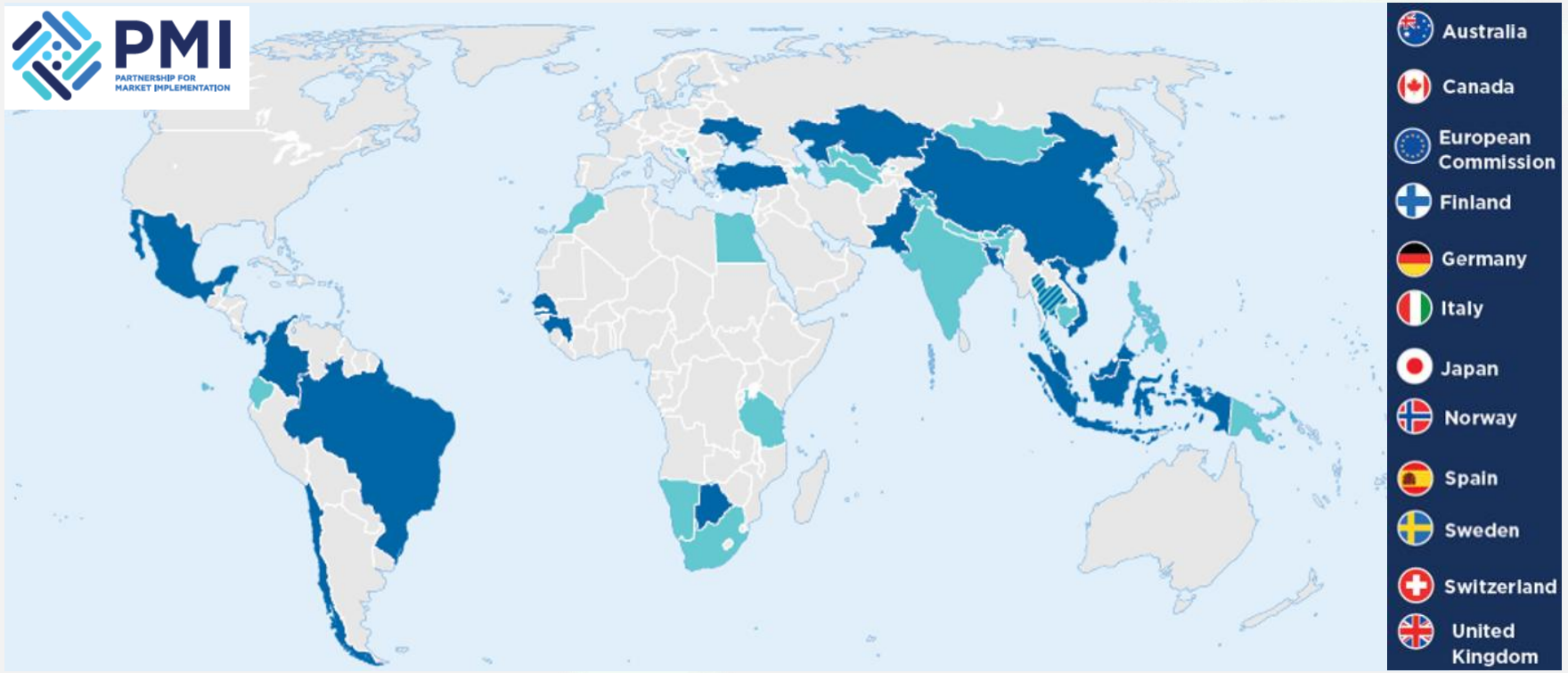
Fiscal pressures

Domestic resource mobilization

Investments

Competitiveness

How to do it?



38 countries supported by PMI

12 donors

A strong ecosystem of technical partners

Operational support for countries

Supporting different stages of implementation

Countries progress through different types of support

Just-in-Time

- *quick diagnostics*
- *immediate policy questions*
- *targeted technical support*

Readiness

- *policy design*
- *legal frameworks*
- *institutional preparation*

Implementation

- *institutional rollout*
- *infrastructure deployment (MRV, registries)*
- *sector integration*

Some implementation challenges are better solved collectively

Regional Programs

- *peer learning on common policy challenges*
- *regional approaches and interoperability*
- *coordinated support with partners*

FY26

- ✓ ***Malaysia, Moldova, and Thailand moved from JIT to implementation support***
- \+ ***South Africa, India, and Guinea expected next***

- ✓ ***Launched in Europe and Central Asia, East Asia and Pacific, and Africa***
- \+ ***Middle East and North Africa launching next***

Practical knowledge and tools

PMI helps countries navigate complex implementation decisions

Analytics and decision tools

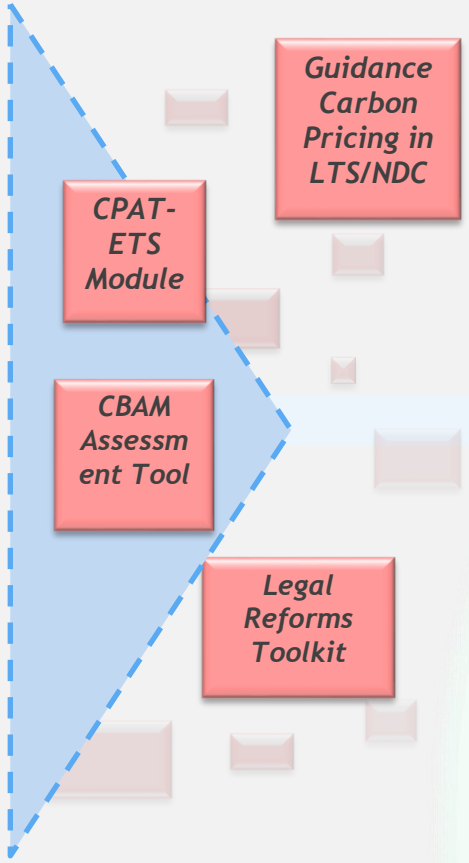
Helping countries assess options and trade-offs

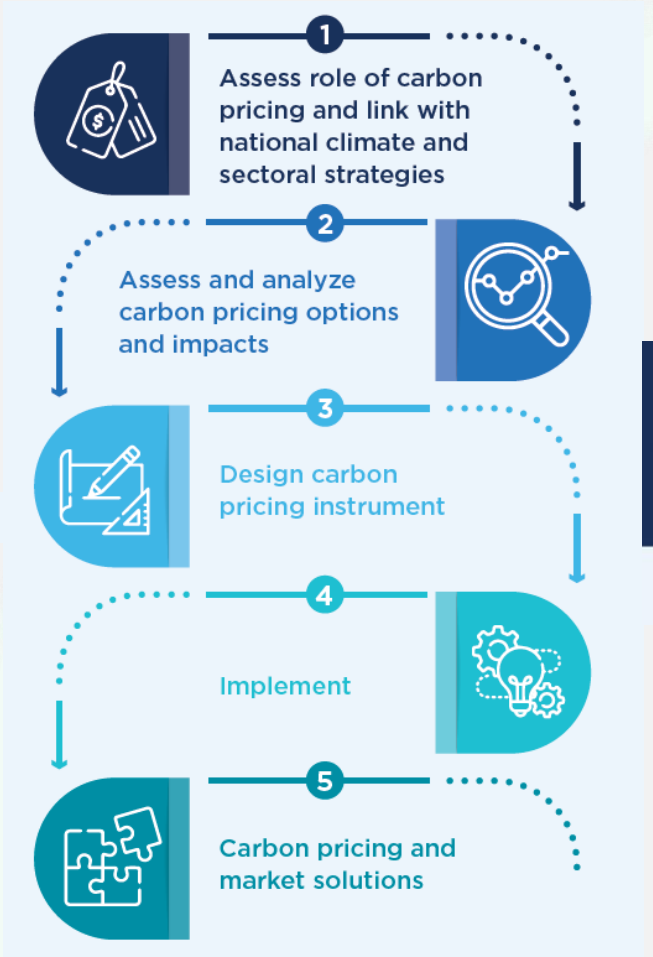
Technical guidance

Helping countries design robust systems

Innovation solutions

Helping countries operationalize infrastructure





KNOWLEDGE CENTER

Scan to access

Use this Forum to shape the support you need

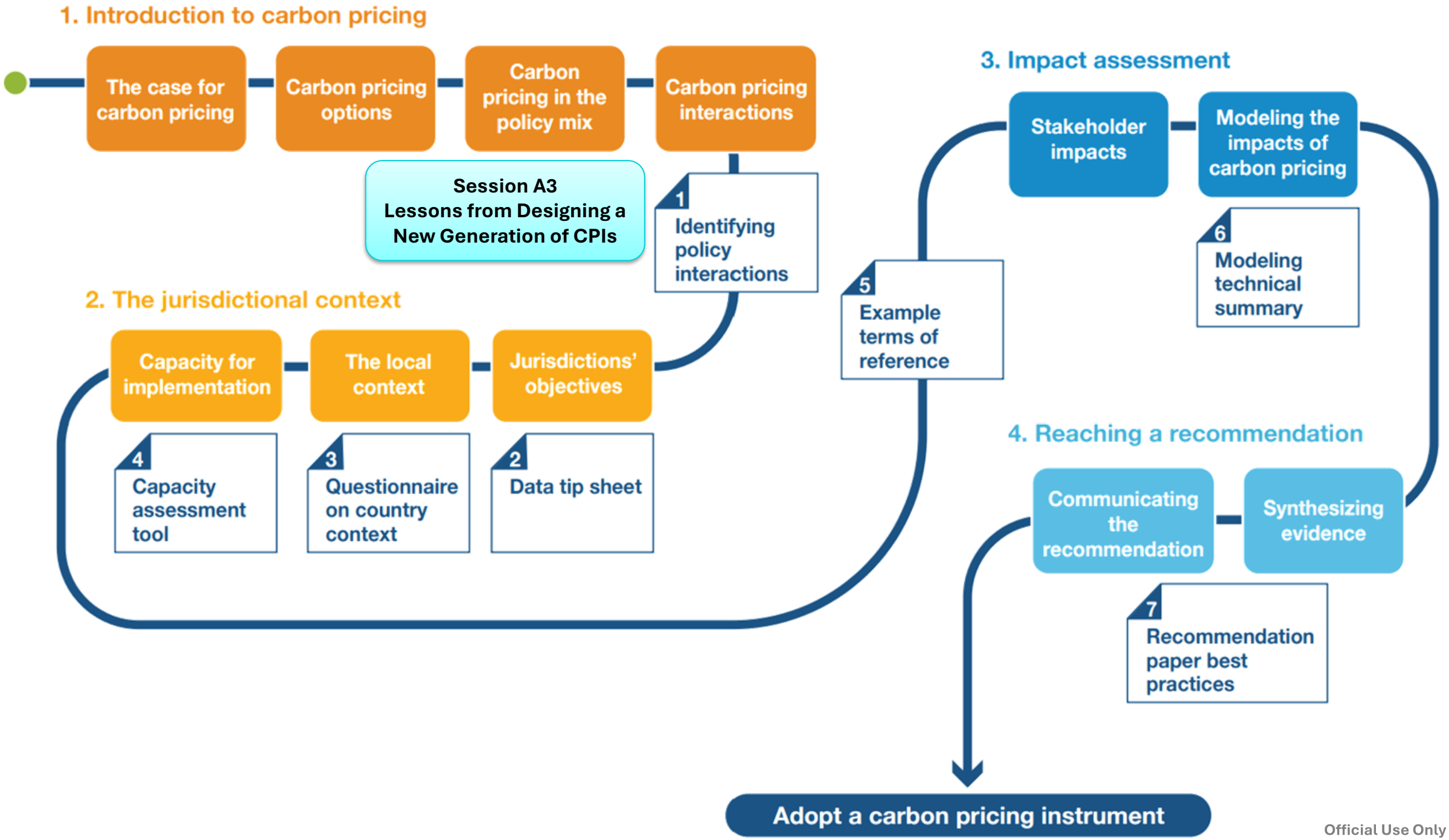
As you engage in the next two days…

Clarify your next steps and the support needed from PMI and partners to move forward

- What decisions will your country need to make next?
- Where are the biggest implementation bottlenecks?
- Which lessons from peers could help accelerate progress?
- Where could PMI and partners provide the most value?

SESSION A3
COUNTRY EXPERIENCES

Lessons from designing a new generation of carbon instruments



Bingqing Lu
Deputy General Manager, Shanghai Environment and Energy Exchange, **China**

Cyril Aboly
Legal Advisor, Ministry of Environment and Sustainable Development, **Guinea**

Gabriela Santamaria
Carbon Specialist, Ministry of Environment, **Panama**

Moderated by **Teresa Solozábal Gallego**
Climate Change Office, Ministry for the Ecological Transition and the Demographic Challenge, **Spain**

SESSION A4
TRENDS

What global trends should be on our minds? Putting a price on carbon and enhancing climate action

WORLD BANK GROUP

2026

STATE AND TRENDS OF carbon pricing

Official Use Only

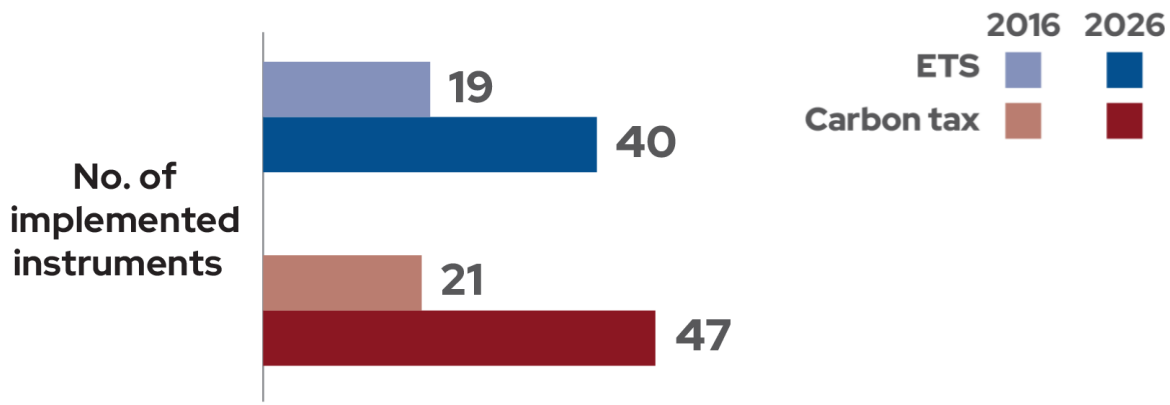
This presentation will focus on four trends of carbon pricing

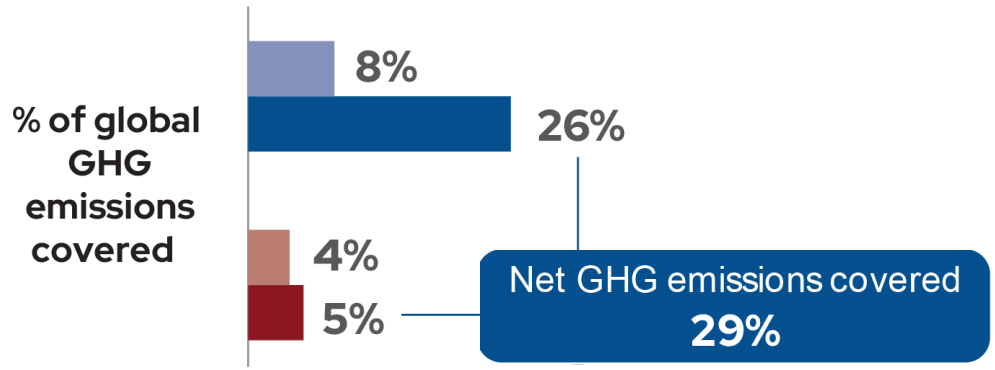
1. Carbon pricing continues to increase the share of global GHG emissions it covers
2. Average carbon prices continue to increase globally
3. Revenues from carbon taxes and ETSs continue to exceed US$ 100 billion
4. Carbon credits are a major design feature for carbon taxes and ETSs

This presentation provides an early look at analysis featured in State and Trends of Carbon Pricing 2026, which will be released on Wednesday May 20th at I4C

1. Carbon pricing continues to increase the share of global GHG emissions it covers

Comparing global ETS and Carbon Tax coverage in 2016 and 2026





Both ETSs and carbon taxes have grown in number and the share of global GHG emissions covered ETSs have increased their share of emissions covered faster than carbon taxes.

This trend continued in 2026 with three national ETSs implemented:

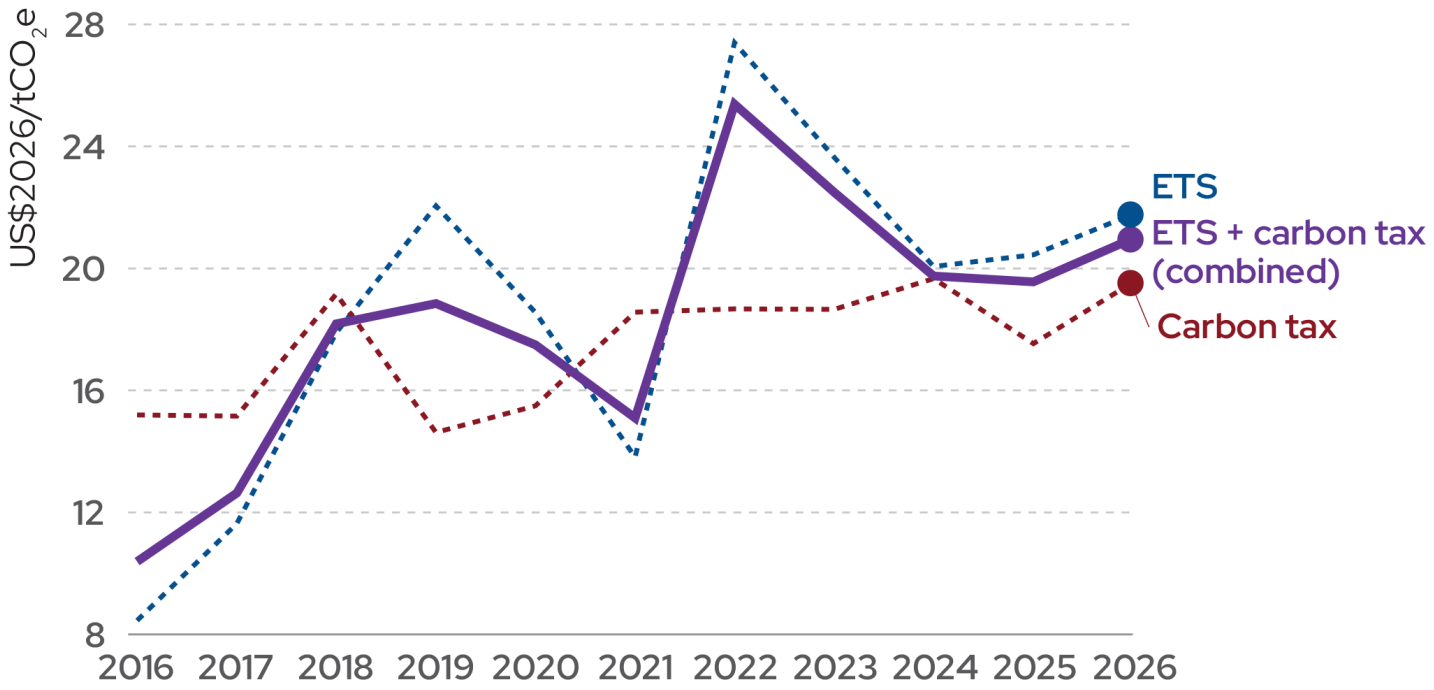
- India's Carbon Credit Trading Scheme (CCTS)
- Japan's GX-ETS
- Viet Nam's pilot ETS

Carbon taxes were also established in Serbia and Mauritania

Additional policies are planned by 2030 in PMI countries including Brazil, Chile, Colombia, Thailand and Türkiye

2. Average carbon prices continue to increase globally

Average carbon prices for ETS, carbon taxes and combined, 2016-2026



Over the last ten years average carbon prices have doubled from US $10/tCO2e to US$21/tCO2e

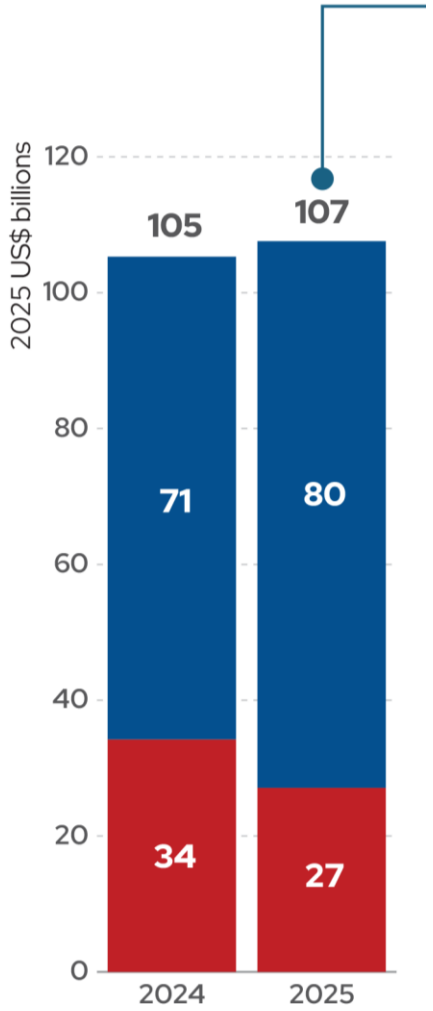
Percent price changes, April 2025-2026

ETSs		Carbon taxes	
EU ETS	+7%	South Africa	+31%
Austria and Germany	+22%	Singapore	+80%
Switzerland	+32%		
K-ETS (Korea)	+64%		

Average prices are higher in Europe and Central Asia than other regions

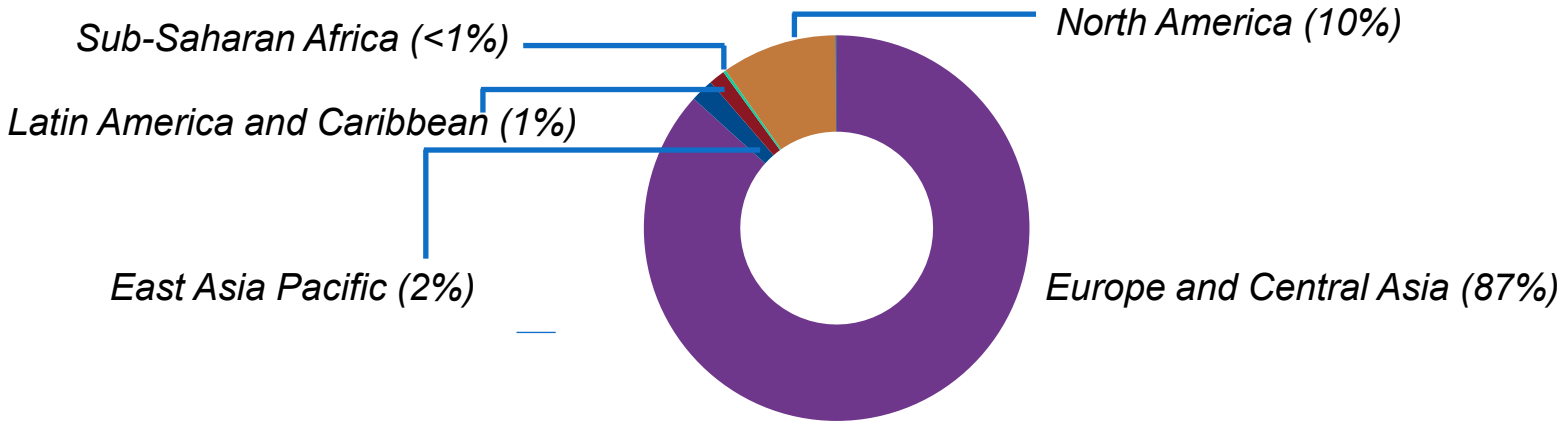
3. Revenues from carbon taxes and ETSs continue to exceed US$ 100 billion

ETS and carbon tax revenues, 2024 and 2025 (in 2025 USD)



Revenues from ETSs and carbon taxes reached US$107 billion in 2025, up from US$30 billion in 2016

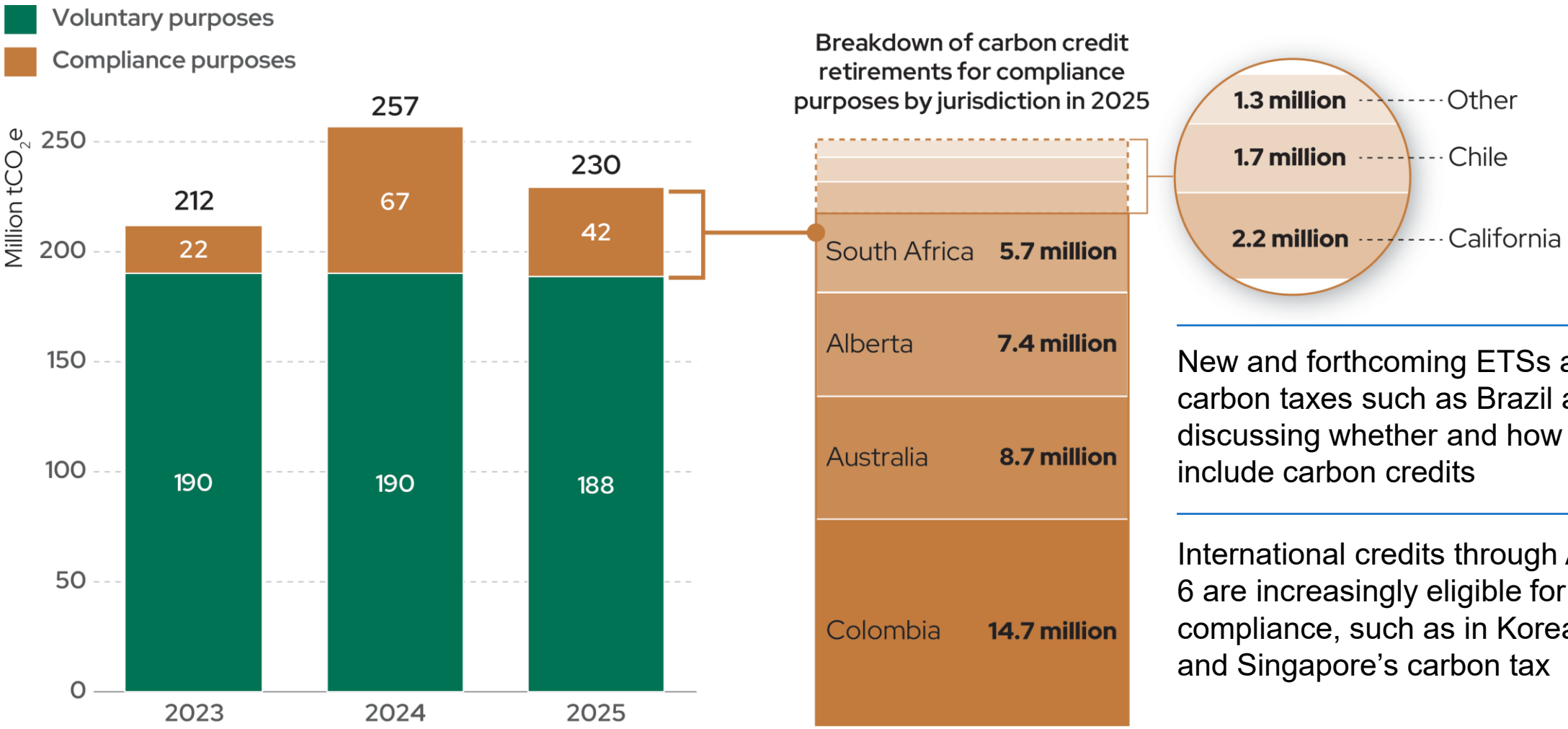
Revenues are currently concentrated in the Europe and Central Asia region



Japan's new GX-ETS, which will channel future revenues toward a national fund for energy transition projects.

4. Carbon credits are a major design feature for carbon taxes and ETSs

Carbon credit retirements for voluntary and compliance uses, 2023-2025



New and forthcoming ETSs and carbon taxes such as Brazil are discussing whether and how to include carbon credits

International credits through Article 6 are increasingly eligible for compliance, such as in Korea's ETS and Singapore's carbon tax

Thank you

State and Trends of Carbon Pricing 2026 will be released on Wednesday May 20th at I4C

Giovanna Naspolini
Head of Methodologies, Secretariat of Carbon Markets, **Brazil**

Natsuki Sugiura
Assistant Director, GX Policy Group, Ministry of Economy, Trade and Industry, **Japan**

Yeshika Malik
Climate Change Specialist, WBG

Moderated by **Leon Heckmann,** Carbon Market Expert, **ICAP**

SESSION A5
FUTURE SHOCKS

Navigating carbon border adjustments

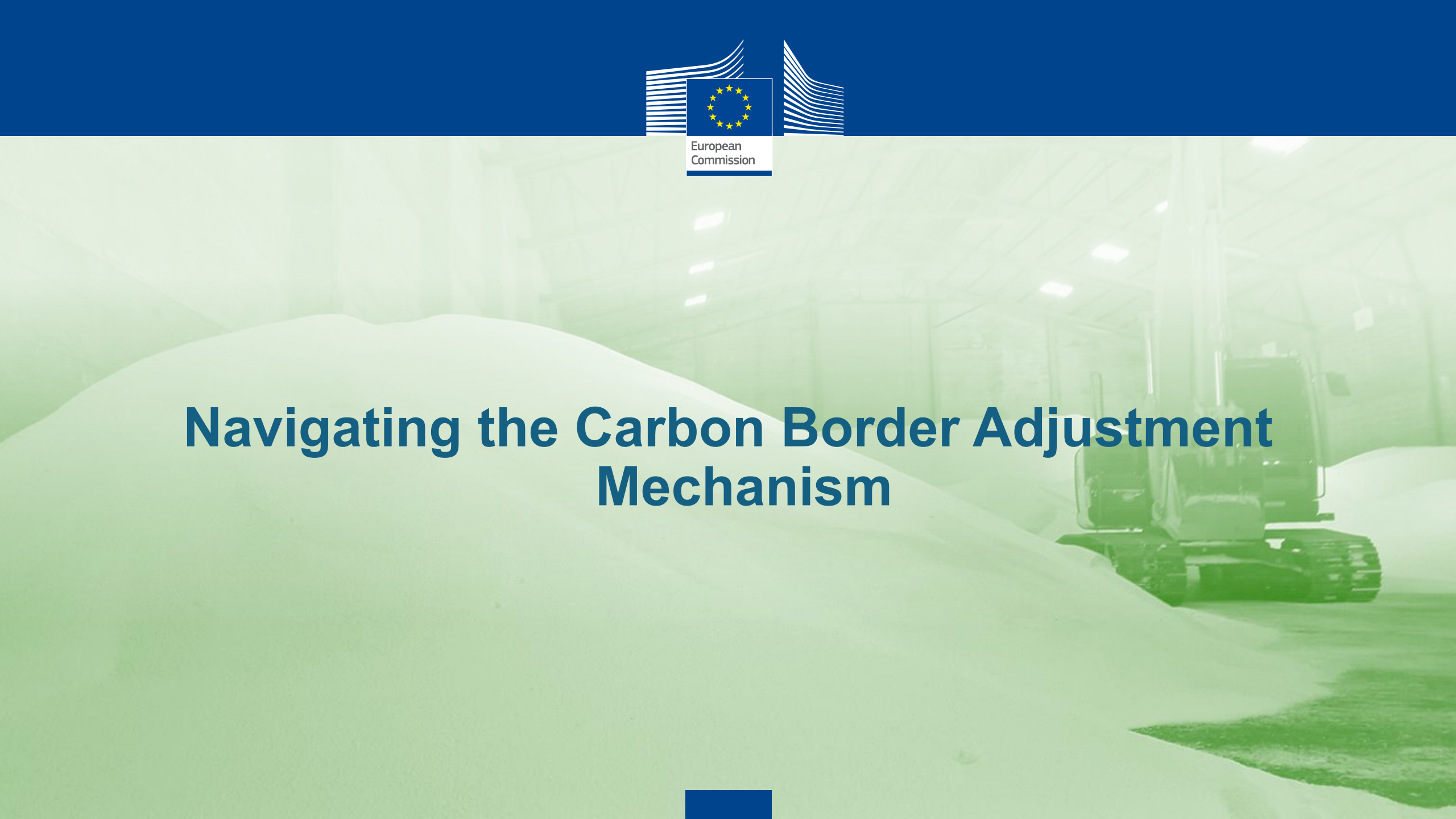
Helen Finney
Head of Carbon Market Programmes and Policy, Department for Energy Security and Net Zero, United Kingdom

Sebastien Paquot
Head of Task Force for International Carbon Pricing and Markets Diplomacy, European Commission

Madeleine Diouf Sarr
Director, Climate Change, Ecological Transition and Green Finance, Ministry of Environment and Ecological Transition, Senegal

Mustafa Kemal Arsunar
Climate Change Expert, Ministry of Environment, Urbanisation and Climate Change, Türkiye

Moderated by **Malin Ahlberg,** Federal Ministry for the Environment, Climate Action, Nature Conservation & Nuclear Safety, Germany



Navigating the Carbon Border Adjustment Mechanism

CBAM: tackling carbon leakage and driving decarbonisation

Mirroring EU **ETS** through new mechanism for imports into the EU

Addressed to companies, not countries, based on **actual carbon content** of imported goods

Aligning with **EU's international policies** and **legal commitments**, including WTO compatibility

Focusing on **carbon-intensive sectors**

Taking into account **carbon price effectively paid by third-country operator**

What are the sectors in the scope of the EU CBAM?


IRON & STEEL


ALUMINIUM


CEMENT


FERTILISER


HYDROGEN

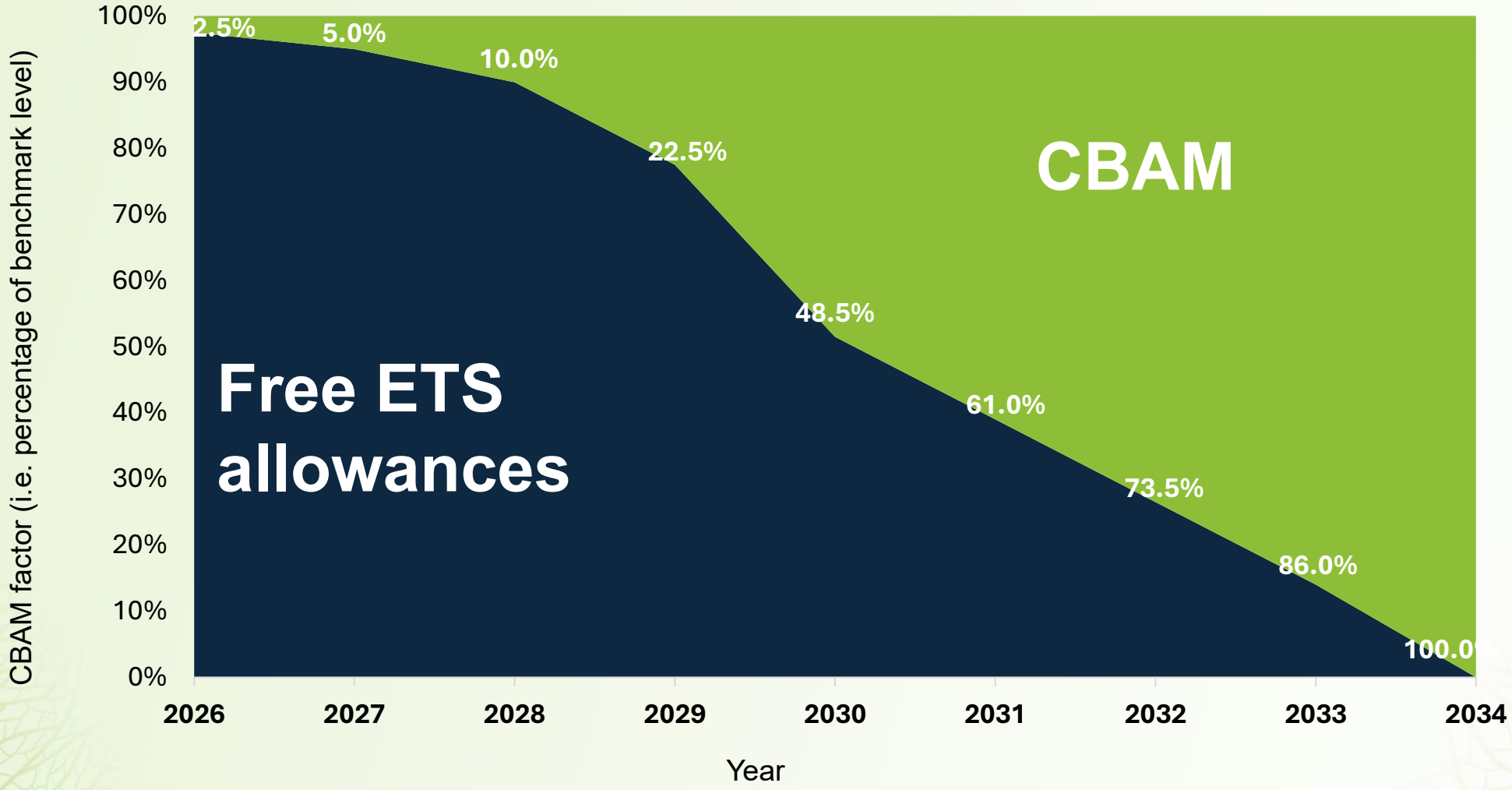

ELECTRICITY

- **6 sectors selected on the basis of 3 criteria**:
  - ✓ *High risk of carbon leakage (high carbon emissions; high level of trade)*
  - ✓ *Covering large share of greenhouse gas emissions of EU ETS sectors*
  - ✓ *Practical feasibility*

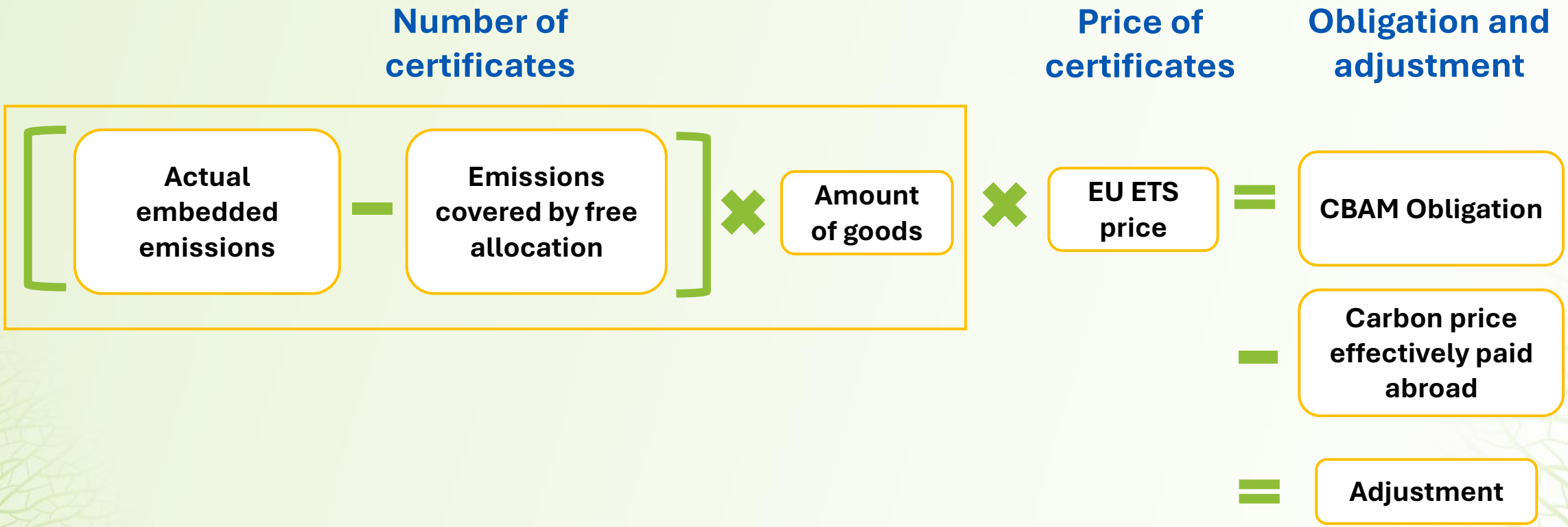
- **Exclusions (50 tonnes per importer/year / countries linked with the EU ETS)**

- **Emissions scope**: (Scope 1) Direct emissions + (scope 2) indirect emissions from electricity (only for Cement and Fertilisers)

Phasing-out of free allocation and phasing-in of CBAM



Calculation of the adjustment



Gradual implementation of CBAM

Transitional period
October 2023 - December 2025

Post-transitional period
January 2026 onwards

2023 | 2024 | 2025 | 2026

A learning phase

Monitoring and reporting

- Total quantity of goods imported during the preceding quarter
- Total embedded direct and indirect emissions
- The carbon price due in the country of origin for the embedded emissions
- No verification

CBAM Simplification – *February 2025*

Communication on carbon leakage – Q2 2025

Review Report – *December 2025*

- Experience with CBAM's application in the two-year transitional period
- Assessment of scope extension post 2026
- Impact on LDCs

Legislative proposal to extend CBAM to certain downstream goods, strengthen its anti-circumvention effectiveness and clarify rules for electricity. Temporary Decarbonisation Fund

Start of **gradual phase-in** of CBAM/phase-out of free ETS allocation.
CBAM fees paid yearly; annual reporting; verification

State of play of the CBAM implementation

Transitional period October 2023 - December 2025

Definitive period January 2026 onwards

2025	2026	2027	2028
Third country operators and EU declarants open account in the CBAM registry	Operators monitor emissions during full calendar year	Operators calculate emissions embedded in CBAM goods produced during 2026	
	Verifiers apply for CBAM accreditation and can intiate verification work (contracts, documentation review, etc…)	Verifiers issue verification report for 2026 emissions	
		EU declarants submit CBAM declaration (using default or actual verified emissions) and surrender corresponding CBAM certificates by 30 September	

October 2025 - Simplifications to the CBAM Regulation

Simplifications with legal proposal under **Omnibus Simplification Package,** tabled on 26 February adopted in October 2026. Included:

- A **new CBAM de minimis threshold to exclude small EU importers with low emissions** and reduce overall compliance cost
  - A new **de minimis ensuring that at least 99% of emissions** remain in scope → threshold set at **50 t mass** of imported goods (iron and steel, aluminium, cement and fertilisers) per importer per year.

- Allow to use **default carbon prices** to facilitate the claim of a reduction for an effective carbon price paid in a third country (as alternative to evidencing an actual payment)

Downstream extension: New goods to be added

Downstream good category	Number CN codes
Industrial Machinery & Machine Tools	34
Vehicles & Chassis	39
Metal Hardware & Fabrications	28
Vehicle Components & Systems	21
Domestic Appliances & Consumer Goods	18
Construction & Lifting Equipment	17
Engines, Motors & Power Generation	7
Electrical & Electronic Components	6
Medical, Laboratory & Safety Devices	5
Agricultural & Lawn Equipment	5
Total	**180**

- In terms of value, the current CBAM scope of **571 CN codes accounts for EU imports of about EUR 100 billion** (out of which EUR 80 billion comes from iron and steel and aluminium)
- The extension would add **180 CN codes** around **55 billion** in value add another **55% in value terms by increasing the scope by 30%** in CN code terms.
- **The vast majority, 94%, of these downstream goods concerned are industrial supply chain products with a high (on average 79%)** steel and aluminium content, used in heavy machinery and specialised equipment, such as base metal mountings, cylinders, industrial radiators, or machines for casting.
- **A small share, 6%, of the downstream goods concerned are also household goods, such as washing machines**.
- Use of actual emissions remains the priority in the determination of embedded emissions
- In case of use default value, **no mark-up**

Principles of the Carbon price deduction

- What qualifies as a **carbon price** under the CBAM Regulation? (Art. 3(29) and Art.9 CBAM Regulation)
- The carbon price must be paid under a carbon emissions reduction scheme, in the form of:
  - A tax, levy or fee
  - Emission allowances under a greenhouse gas emissions trading system
- Calculated on greenhouse gases covered by the scheme, and released during the production of the CBAM goods.
- Must be **effectively paid**. Any rebate or other form of compensation that would have resulted in a reduction of the carbon price will be taken into account.
- Public consultation on the draft implementing act.

Thank you!

If you have any questions, please contact us:

TAXUD-CBAM@ec.europa.eu

SESSION A5
FUTURE SHOCKS

Navigating carbon border adjustments

Framework for Quantifying EU CBAM Exposure, Costs, and Opportunities

I4C 2026
SINGAPORE
MAY 20-22

Context

01

Developing economies are exposed to transition risks

Relatively limited capacity to respond to global shifts resulting from a push to decarbonize

02

Border Carbon Adjustments are a tangible example of a transition risk

BCAs are an emerging policy tool to address carbon leakage

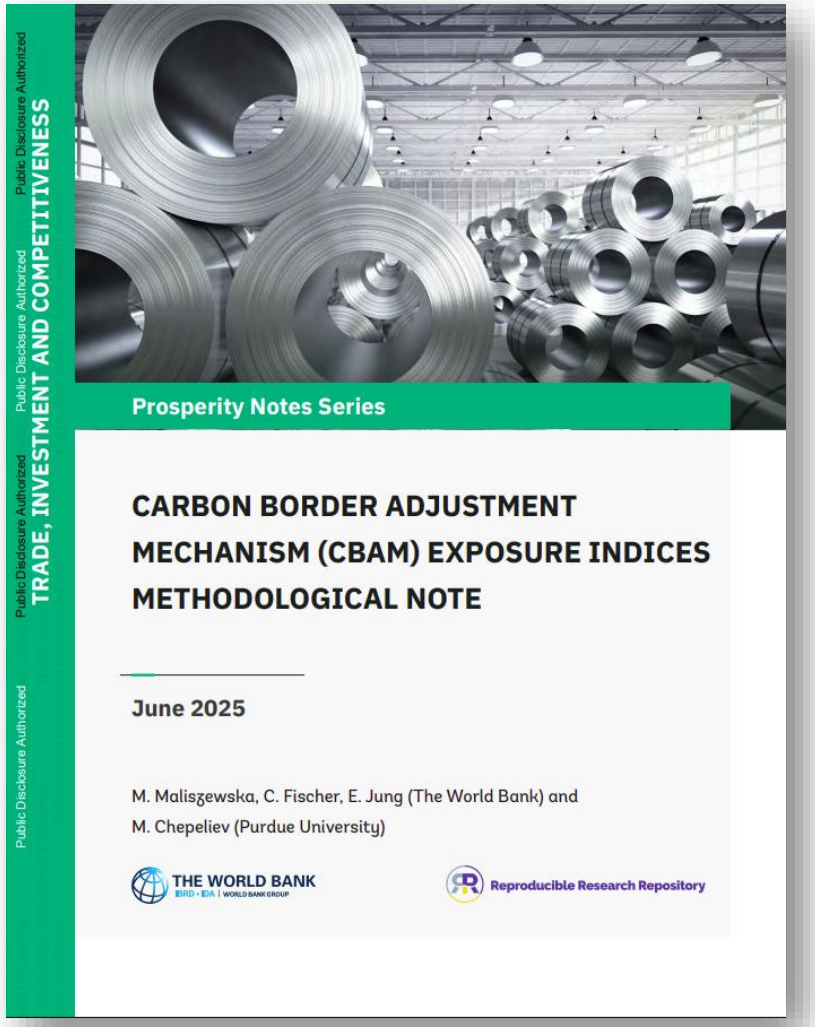
03

EU CBAM is the first transnational example of a BCA

Financial costs are imposed on imports made from 2026

Developing a framework to assess CBAM exposure

Building on existing efforts to provide a comprehensive framework to assess exposure and impacts



1 Indicators

A **suite of indicators** are introduced—including total certificate costs, trade intensity metrics, and competitiveness measures

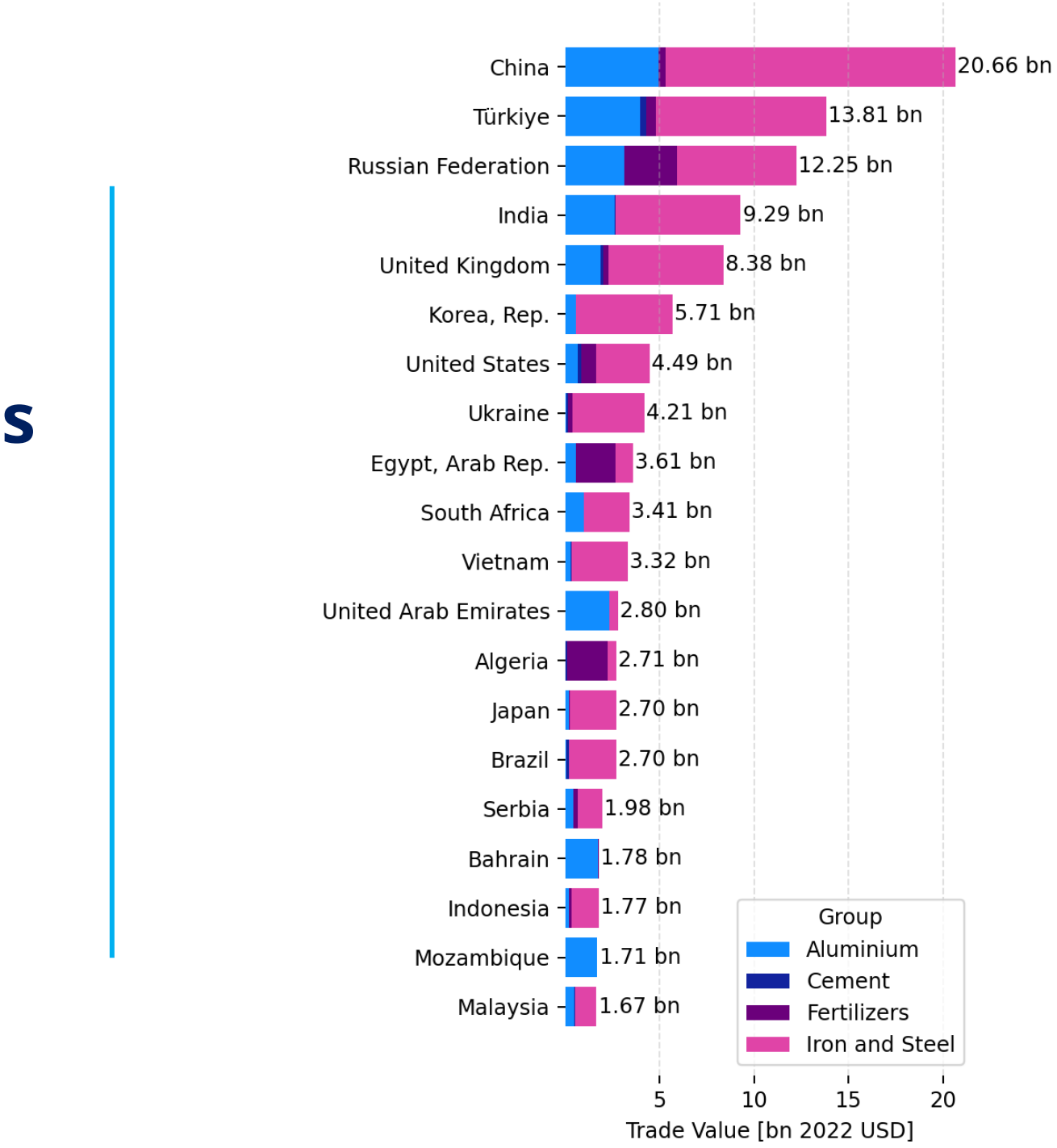
2 Compare data sources

Comparing results across data sources, contrasting **value-based** emission intensities with **mass-based** default values

3 Practical responses

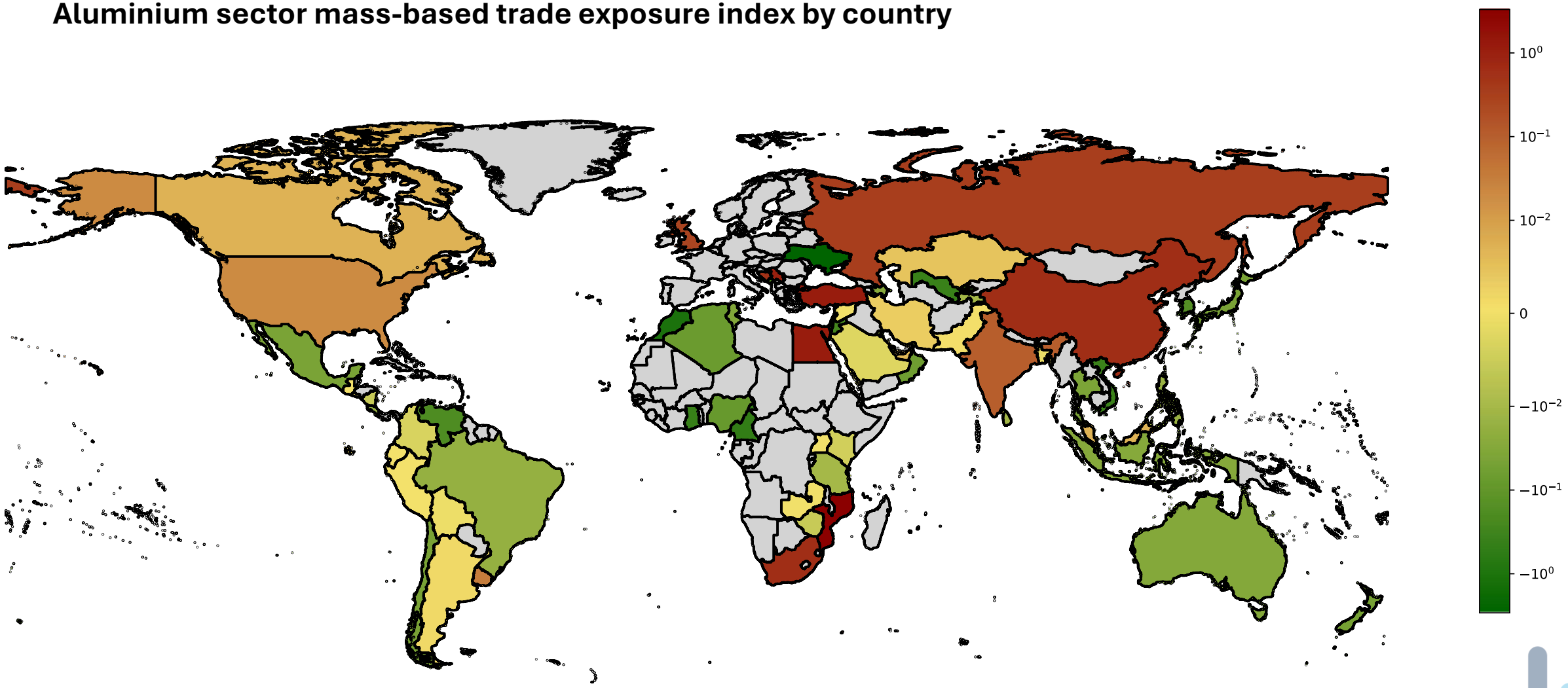
Discusses **practical opportunities** for governments to help reduce exporters' costs

Top 20 exporters of CBAM goods to the EU by trade value (2022)



Global comparisons: Aluminium

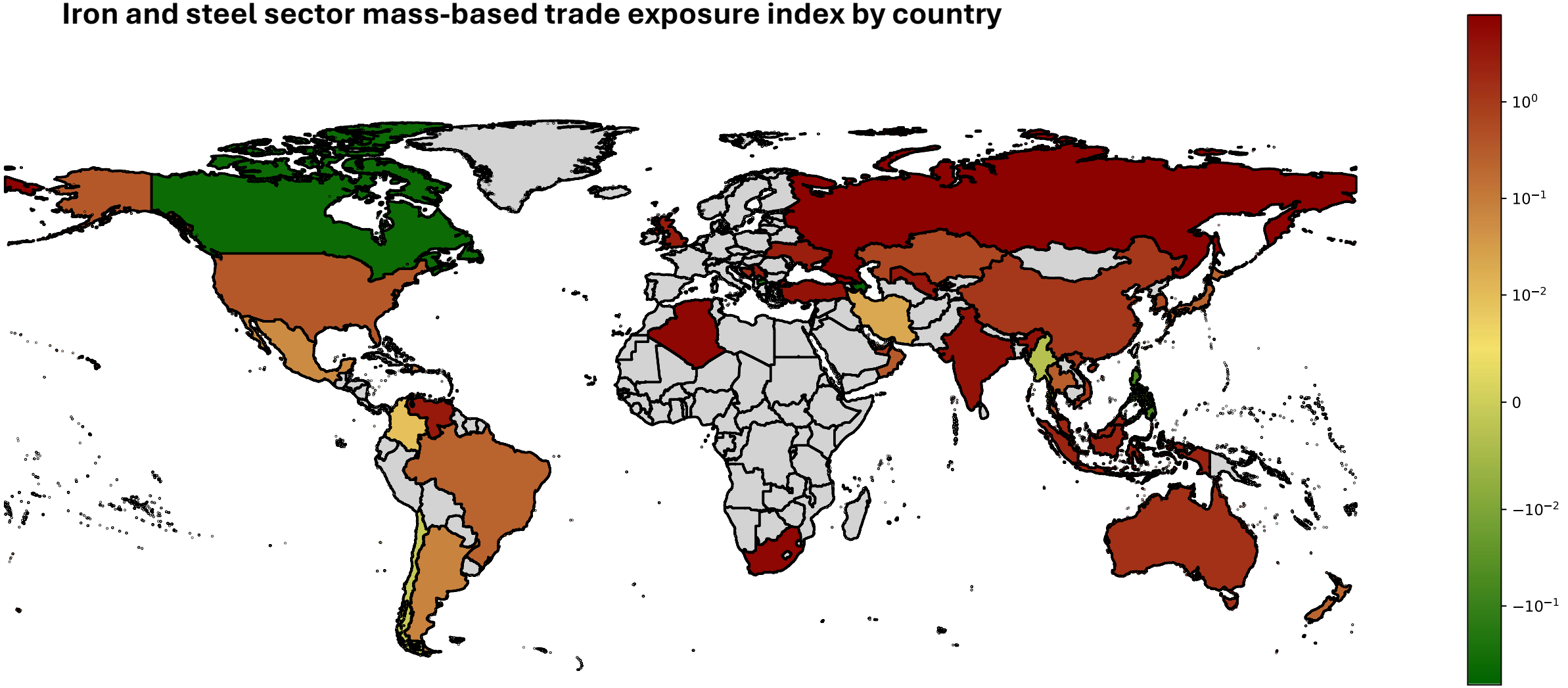
Aluminium sector mass-based trade exposure index by country



The Trade Exposure Index (TEI) estimates the exposure of a trade partner to the EU CBAM, calculated at the sector-level. It provides an indication of relative competitiveness and market share, at the sector level. A positive value indicates an intensity higher than the EU (and the potential loss of competitiveness).

Global comparisons: Iron and Steel

Iron and steel sector mass-based trade exposure index by country



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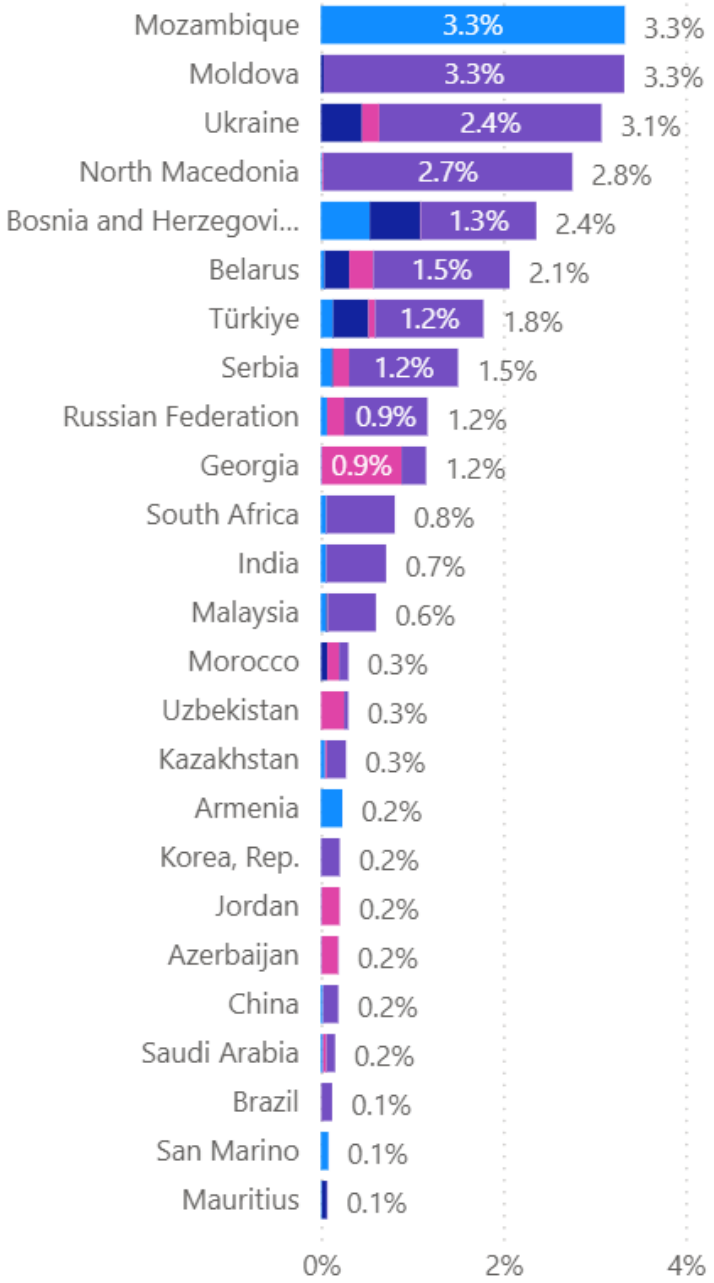


"Fiscal Opportunity Index" on CBAM goods exports (2022)

Represents CBAM certificate costs as a share of domestic tax revenues

Note: assumes a carbon price of USD 100 per ton of CO2, that all CBAM emissions from exported goods are covered, no other sectors are covered by the carbon price. And EU free allocation s completely phased out

Key Takeaways

01

Vulnerability is unevenly distributed

While large countries have the largest absolute exposure, smaller economies are arguably more vulnerable, because aggregate CBAM costs represent a disproportionately large share of their GDP

02

Data source matters

Data choice can flip the results (e.g. value-based or mass-based) producing different conclusions about which countries are most exposed or competitive under CBAM

03

Revenue metrics are only the starting point

While these metrics offer important insights, they can oversimplify the broader fiscal and economic reality

Madeleine Diouf Sarr
Director, Climate Change, Ecological Transition and Green Finance, Ministry of Environment and Ecological Transition, Senegal

Mustafa Kemal Arsunar
Climate Change Expert, Ministry of Environment, Urbanization and Climate Change, Türkiye

Moderated by **Malin Ahlberg,** Federal Ministry for the Environment, Climate Action, Nature Conservation & Nuclear Safety, Germany

SESSION A6
INNOVATION

Implementation of innovative infrastructure solutions

Aliona Rusnac
Secretary of State, Ministry of Environment, **Moldova**

Diana Guzmán Torres
Director of Climate Change Mitigation and Adaptation Policies, Ministry of Environment and Natural Resources, **Mexico**

Wissarut Muangpluem
Environmentalist, Department of Climate Change, Ministry of Natural Resources and Environment, **Thailand**

Lweembe Mwale
Project Officer, Climate Change Programme, **COMESA**

Moderated by **Lorna Ritchie**, Director of Public Affairs, Integrity Council for Voluntary Council Market (**ICVCM**)

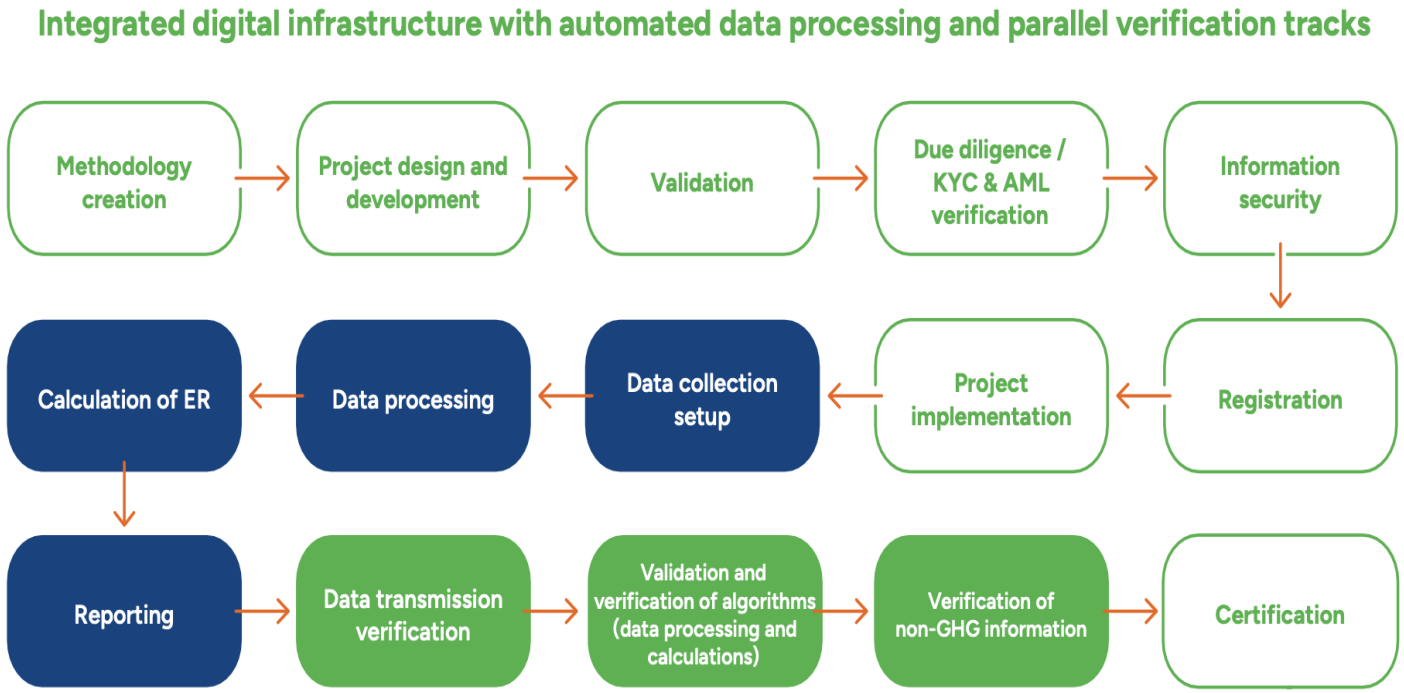
Digital MRV Readiness for Carbon Pricing Systems in Moldova

Why Digital MRV Matters

- Carbon pricing systems require trusted emissions data
- Manual MRV becomes difficult to scale
- Digital MRV supports:
  - transparency,
  - efficiency,
  - interoperability,
  - lower transaction costs,
  - faster verification, and
  - stronger integrity.
- Moldova Context:
  - Moldova is working on introducing carbon pricing and EU alignment
  - Early digitalization avoids lock-in to inefficient legacy systems
  - Important for future interoperability with EU-related systems

What is Digital MRV (dMRV)?

- Digital MRV integrates digital infrastructure into emissions monitoring, reporting, and verification workflows through automation, digital data capture, interoperability, and continuous validation.
- Key technologies:
  - IoT sensors
  - APIs
  - Digital reporting platforms
  - Satellite data
  - AI/analytics
  - Blockchain/DLT



Barriers and Risks

- Technological
- Operational
- Regulatory
- Integrity/Inclusion

- Lack of technical expertise, unclear standards, interoperability gaps, cybersecurity, resistance to change
- Potential constraints for Moldova: institutional capacity constraints, fragmented datasets, evolving legal framework, limited digital integration across agencies
- Integrity constraints:
  - “black box” algorithms,
  - cybersecurity,
  - data tampering,
  - unequal access,
  - algorithmic bias,
  - vendor lock-in.

How to Assess dMRV Readiness

- Readiness benchmarking
- Countries can assess dMRV maturity using structured evaluation criteria.
  - transaction costs
  - transparency
  - accuracy
  - scalability
  - speed
  - standardization
  - fraud resilience
  - accessibility

Moldova Readiness (Self)Evaluation

	Emerging	Developing	Advanced
Legal framework	X		
Institutional coordination		X	
Data infrastructure	X		
Digital reporting systems	X		
Verification capacity	X		
Interoperability	X		
Cybersecurity		X	
Automation readiness		X	

High-Value dMRV Hotspots and Technical Caveats

- Not all MRV elements should be digitized at once.
- Priority areas:
  1. Measurement & data storage
  2. Emission reduction calculations
  3. Verification
  4. Reporting
- Technical Caveats:
  - Data integrity & conservative quantification
  - Digital verification challenges
  - Challenges of non-GHG verification

Next steps and plans

- Short-term:
  - digitalized reporting templates
  - structured emissions database
  - pilot workflows
  - capacity building
  - standardized data protocols
- Long-term:
  - interoperability standards
  - algorithm validation
  - continuous verification
  - registry integration
  - cybersecurity frameworks
  - alignment with evolving EU and international carbon market infrastructure (EU ETS digital reporting evolution)

Moldova will pursue phased, fit-for-purpose digitalization. Capacity-building is essential. Early planning supports future carbon pricing readiness. Standardization and interoperability are critical.

- **Phase 1 — Foundations**
  - institutional mapping
  - data architecture assessment
  - legal review
  - pilot sector selection
- **Phase 2 — Pilot Digitalization**
  - digital reporting tools
  - APIs/data exchange
  - verifier training
  - automated calculations
- **Phase 3 — Integration & Scaling**
  - registry integration
  - interoperability
  - continuous verification
  - broader sector coverage

Aliona Rusnac
Secretary of State, Ministry of Environment, **Moldova**

Diana Guzmán Torres
Director of Climate Change Mitigation and Adaptation Policies, Ministry of Environment and Natural Resources, **Mexico**

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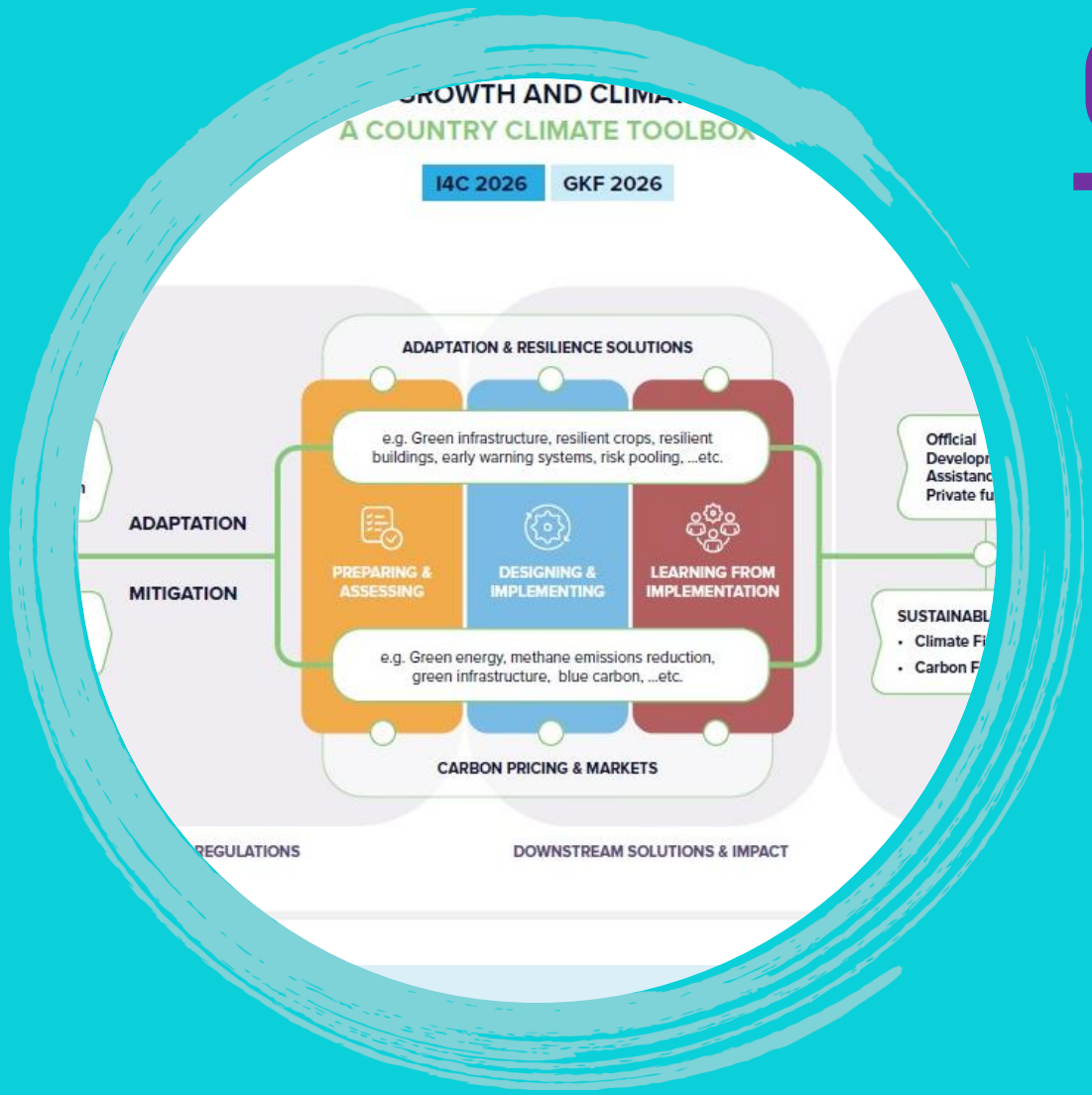
SESSION A7
SOLUTIONS SHOW & TELL

Interactive tour of carbon pricing tools and solutions

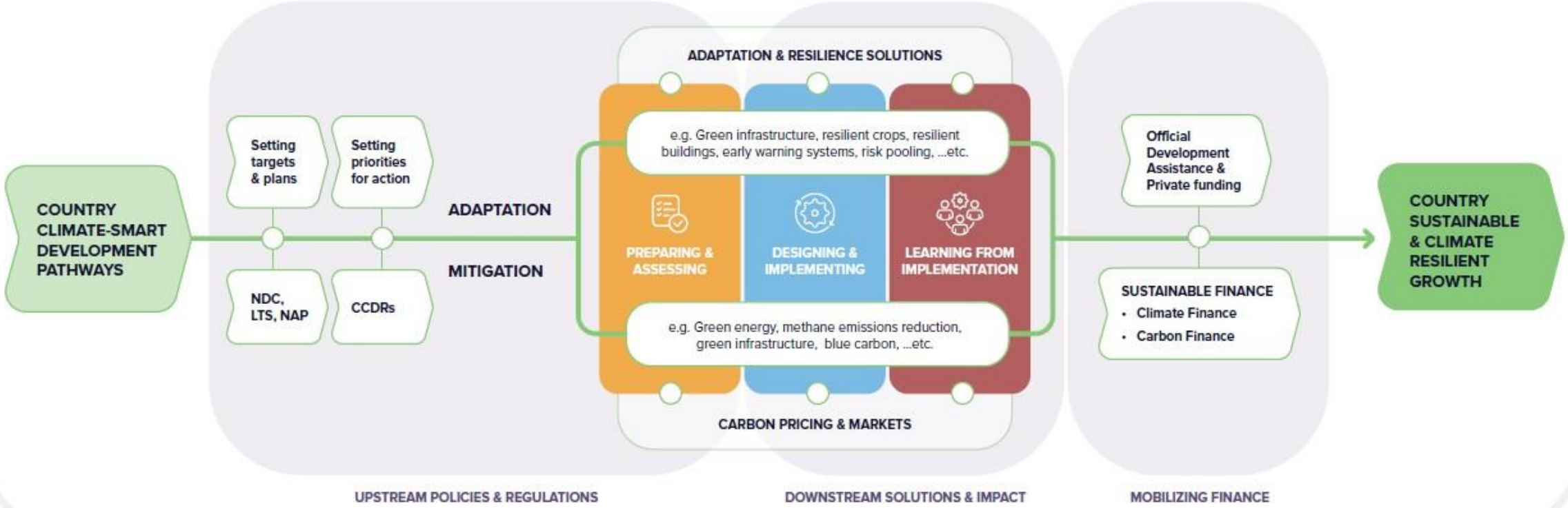


COUNTRY CLIMATE TOOLBOX

TOWARD SUSTAINABLE GROWTH AND CLIMATE RESILIENT ECONOMIES

A COUNTRY CLIMATE TOOLBOX

I4C 2026 | GKF 2026



KNOWLEDGE STATIONS

Table 3 - Session A3
Country experiences

Table 5 – Session A4
Trends: Carbon Pricing

Table 7 – Session A5
Future Shocks: CBAM

Table 9 – Session A6
Innovation: dMRV

Table 12
ETS simulator: Anthony

Table 14
CPAT: Hari

Table 16
CBAM Exposure Tool: Joe

Table 18
Carbon Pricing Dashboard: Shreya

SESSION A8
TAKEAWAYS

What does this all mean for countries?