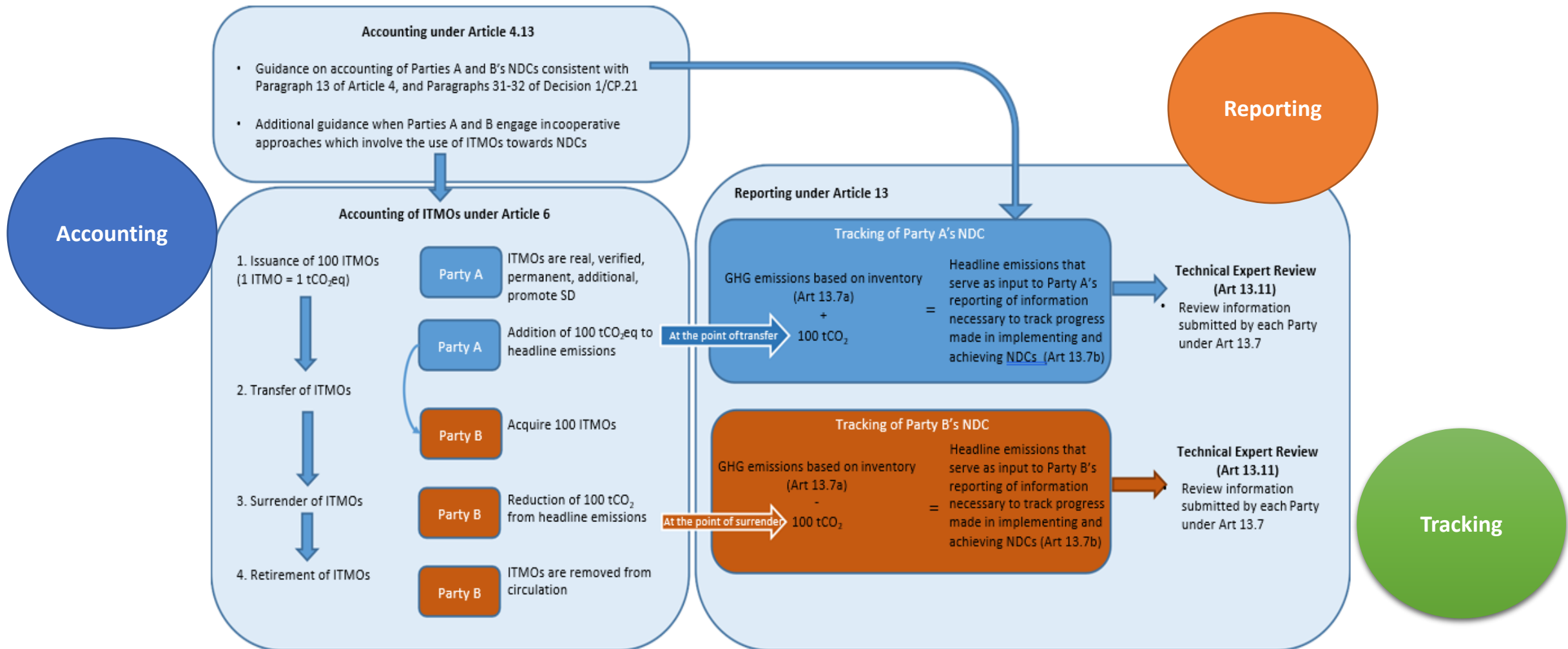




**SUPPORTING COUNTRIES  
WITH  
DEVELOPMENT OF INFRASTRUCTURE  
FOR  
INTERNATIONAL CARBON MARKETS**

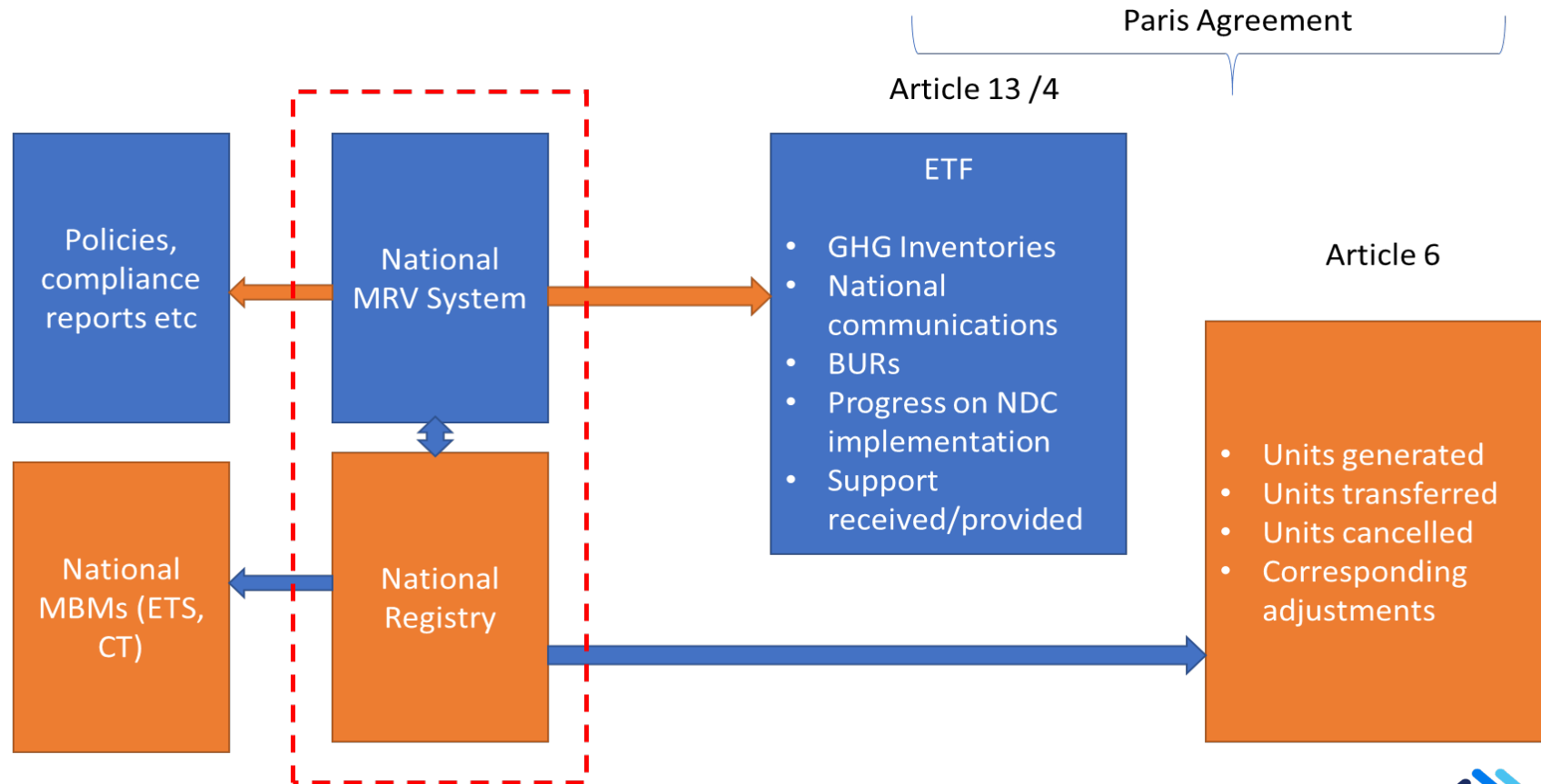
# Changing context and changing requirements means countries need to get prepared, *quickly*



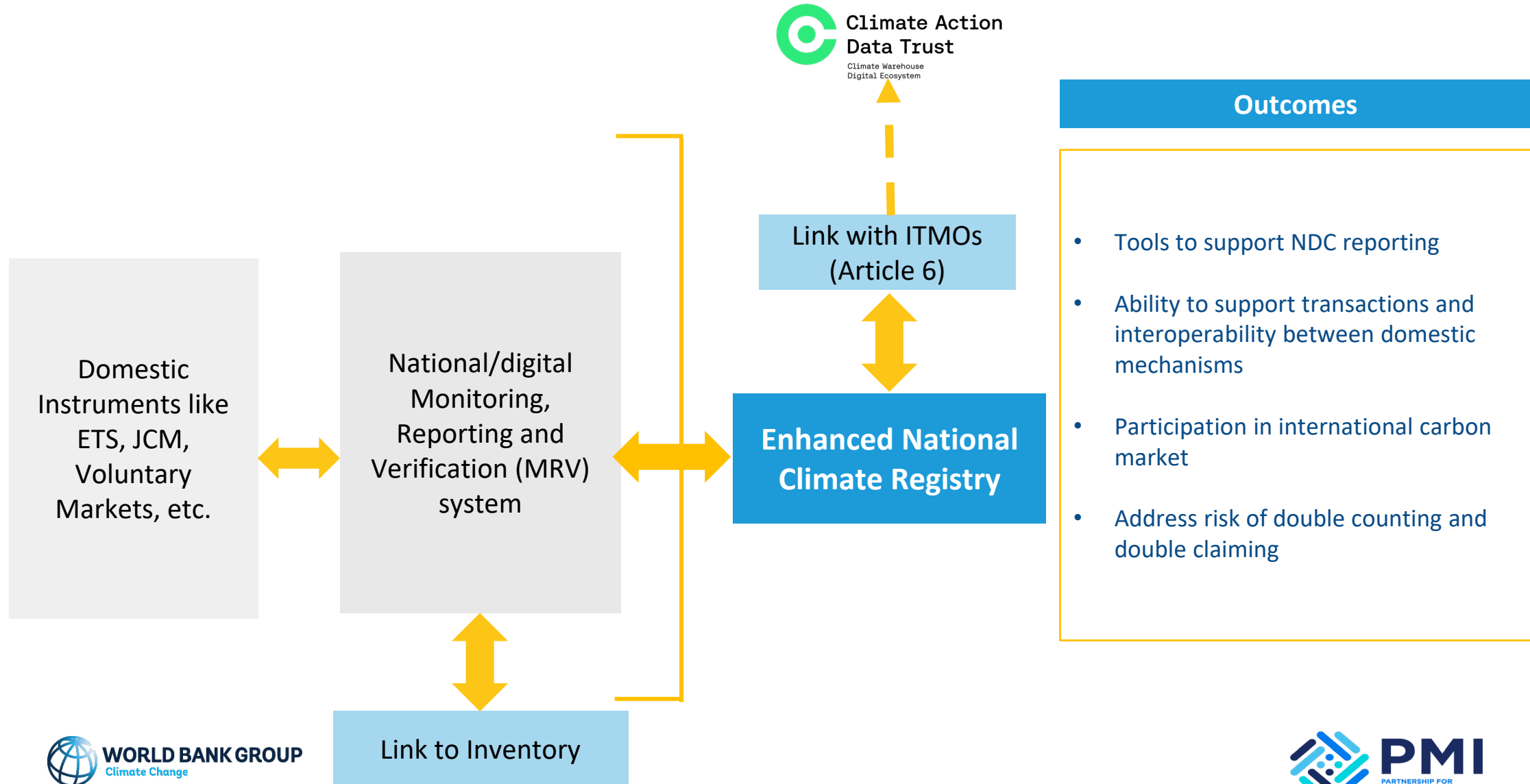
# ..and, countries need an infrastructure that satisfy multiple requirements

## DOMESTIC REQUIREMENTS

## INTERNATIONAL REQUIREMENTS



# An infrastructure that supports domestic and international markets determines the country's ability to participate in markets and meet climate goals





# World Bank Climate Warehouse Program:

Building an End-to-End Digital Ecosystem for Carbon Markets



## Pillar 1: Piloting and Developing Global Public Goods

Making digital infrastructure for carbon markets available to client countries through development, testing and prototyping of innovative digital infrastructure for carbon markets.

- **Monitoring, Reviewing and Verification (MRV) systems.**
- **National Carbon Registries.**
- **Tokenization instruments.**
- **Climate Action Data Trust (CAD Trust).**

→ **Digital for Climate (D4C) Working Group.** Collaboration with EBRD, UNDP, UNFCCC, IETA, ESA for a modular and interoperable end-to-end digital ecosystem for carbon markets.



## Pillar 2: Global Knowledge and Capacity-Building

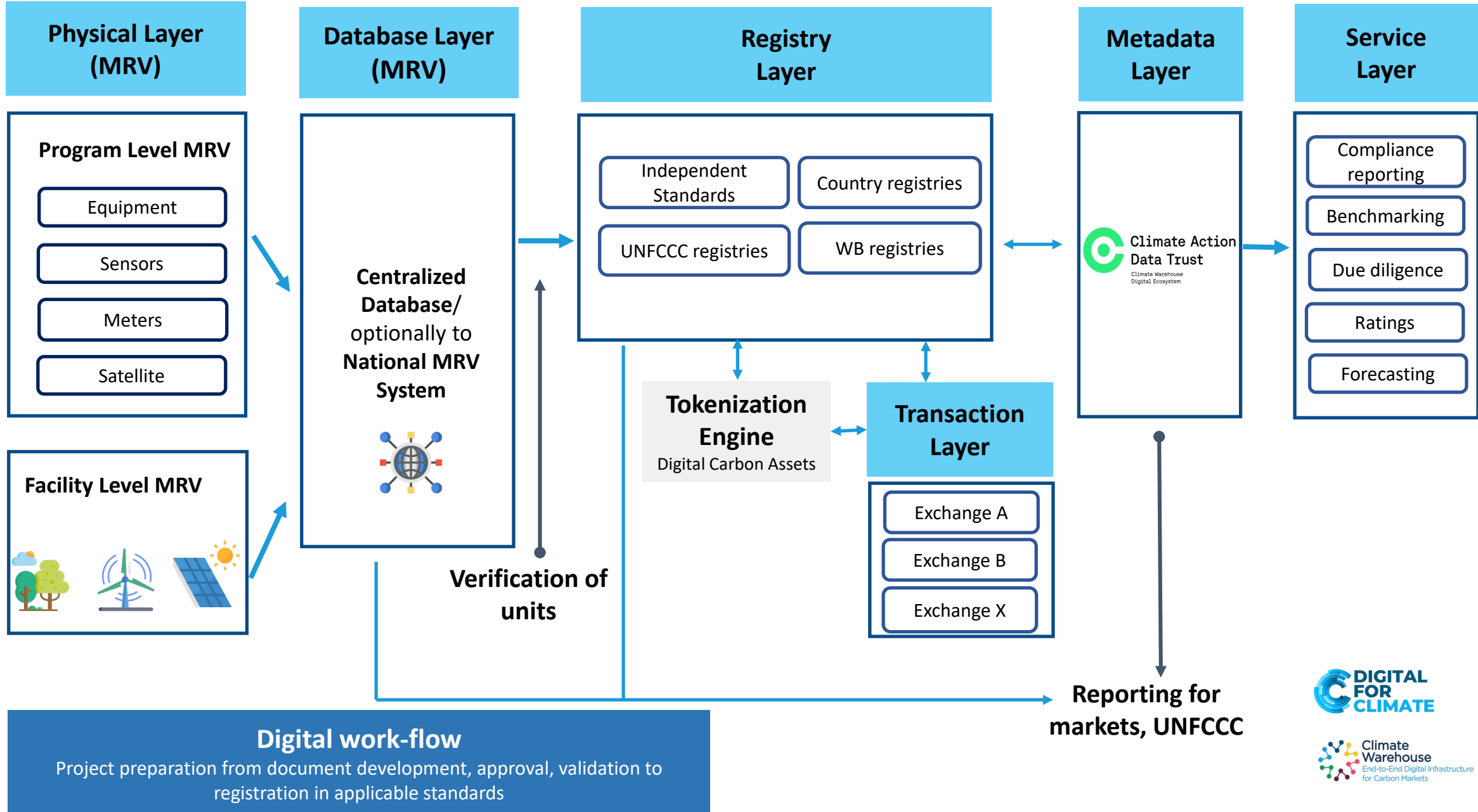
Support countries and jurisdictions to in implementation of digital infrastructure for carbon markets needed for GHG mitigation and NDC implementation.

- **Develop** knowledge base on digital infrastructure and facilitate information exchange through technical discussions and knowledge dissemination
- **Assist** countries to identify and implement best practice approaches and, where relevant, achieve compatibility in design to support the development and linking of digital infrastructure for carbon markets
- **Encourage** international and national cooperation, and inform the domestic and global policy discussions on GHG mitigation by sharing lessons learned and providing a platform for collective innovation on digital infrastructure products

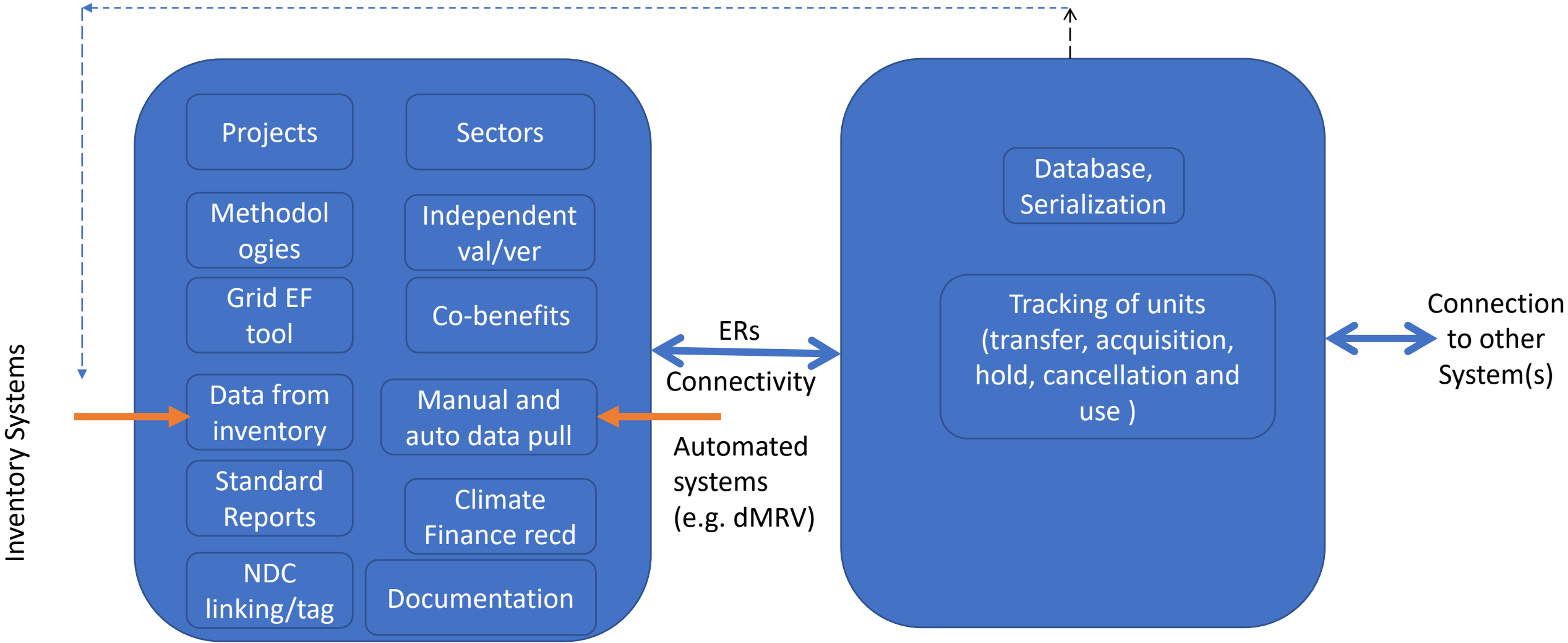


# Climate Warehouse Program: Building an End-to-end digital Ecosystem for Carbon Markets

**Digital Methodology**  
Digitalization of Methodologies: smart contract toward the digitization of the mitigation activity cycle



# Main Features of the World Bank supported MRV and Registry System



**MRV System**  
(Project, Sector, National)

**Registry System**

Both will have a 'Public Part' + 'Private Part'



## The World Bank offers two opensource national carbon registries

### Core Registry

- Issuance of digital carbon credits
- **Simplified manual entry mechanism** to upload project and unit data
- Tool to digitize carbon credits for transactions (tokenization)
- Automatically synced to the global platform **Climate Action Data Trust** for reporting purposes

### Enhanced Registry

- Issuance of carbon credits
- Domestic and international crediting market **transactions**
- Embedded **national MRV system** with automated data entry mechanisms
- **Multistakeholder account** management system



## What are the Key Characteristic of the Registry Offering?

Functionalities	Required for Article 6	Core Registry (On-chain)	Enhanced Registry (with MRV system)
Add/Remove Project	Yes	✓	✓
Issue Units	Yes	✓	✓
Use/Transfer Units	Yes	✓	✓
Allow for Multiple Account Holders	Yes	✓	✓
Label Issued ERs (e.g., ITMO Authorization)	Yes	✓	✓
Dedicated Accounts for OMGE and SOP	Yes	✓	✓
Link to Climate Action Data Trust (CADT)	No	✓	✗
Track and Manage Workstreams	No	✗	✓
Create New Project Types and Methodologies	No	✗	✓
Link to GHG Inventory	No	✗	✓
Report Generation	No	✗	✓
Distributed Ledger Technology	No	✓	✗
Open-source Software	No	✓	✓

# Infrastructure Strategy: What countries should do and know?

- Understand the needs
  - What is used for – carbon pricing, carbon markets, both
  - MRV or Registry or both
  - Is something already there? What state?
  - What the plans are? Develop a new one or strengthen the existing or add new functionalities
  - MRV – project level, facility level, sector level, national level
  - Standards/methodologies - domestic, international, both
  - Process – who is responsible, who validates, who maintains
  - Registry – Register, Transaction registry, linking with other registries
  - Access to the systems – only to the govt or market players or both
  - Info public/market participants – aggregate date, where to publish, what frequency
  - Maintenance requirements – inhouse, domestic or international capacity
- Understanding the functionalities of MRV and Registry that are offered by Partners
- Identify the gaps
- Assess capacity building needs
- Assess the need for regulatory support
- Assess the scope and estimate the budget needs

# Some early observations

- Countries with cooperative approaches (under A6.2) are ahead with plans to establish the infrastructure systems
- Countries with already established data mgmt. systems are building on the existing ones; but not a straight-forward process
- Priority to have the registry system over the MRV system; but mainly due to lack of clarity on which one does what and their usefulness
- Lack of understanding on what the UNFCCC registry supports and the need for having a national level registry
- No best practices to adopt for development of systems for carbon markets and to understand the costs to build such (vary from \$50k to \$500k)
- Some countries are ahead of having systems before they develop the policy framework to govern them
- Countries with fewer projects and decided to have systems are likely to make systems redundant
- Countries with domestic carbon pricing or in the process of having one are exploring options to have one that serves both; but influenced by the governance and resources

# Some early challenges

- Lack of resources (manpower) to manage the systems
- Inability to get the resources needed for maintenance of systems
- Difficulties to align with the governments own IT policies, mainly on the security of systems and the ownership
- Challenges with the user management
- Obtaining the quality data and in a timely manner
- Connectivity with other registries due to lack of standard communication protocols

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