

K-CTDP

Korea Climate Technology Demonstration Program (R&D)

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01 Objectives & Scope

- ❖ **Demonstrate proven Korean climate technologies** (GHG mitigation and adaptation solutions at TRL 5–6) **through pilot deployments in developing countries**, validating technical performance and local adaptability in developing country conditions, substantiating bankability to unlock financing, and building internationally recognized project track records for future scaling.
- ❖ **Focus on small-and medium-scale** pilot projects in Korea's 17 key carbon-neutrality technology areas (e.g., renewable energy and hydrogen, BECCUS, AI-enabled climate disaster and forest management systems, and eco-friendly mobility solutions).
- ❖ **Leverage pilot outcomes to design and finance large-scale follow-on projects** in partnership with IFIs, MDBs, UN agencies, ODA programs, and private investors – accelerating the global deployment of Korean climate technologies while enhancing developing countries' carbon neutrality pathways and climate resilience.

02 Lead Ministry

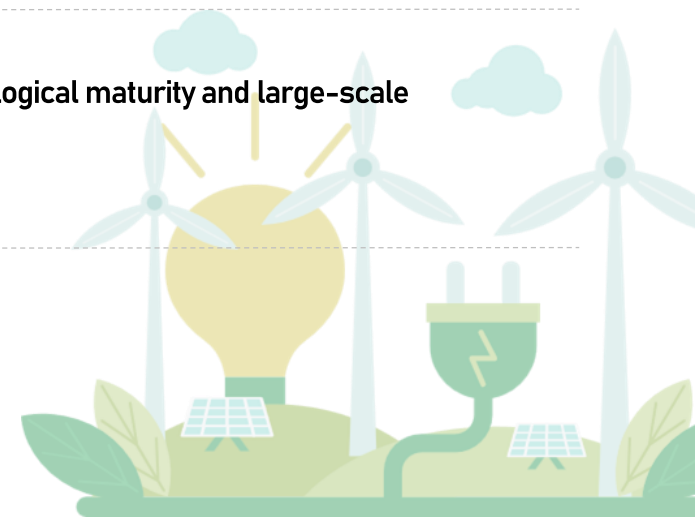
- ❖ **MSIT (Ministry of Science & ICT) of Korea** – Providing overall policy direction and strategic oversight, approving the program framework, budget allocation and annual work plans

03 Executing Entity

- ❖ **Consortia led by Korean R&D institutes, joined by Korean private technology firms** possessing proven technological maturity and large-scale commercialization capabilities.

04 Budget & Period

- ❖ Budget per pilot project: **Up to USD 1.7 million** (KRW 2.4 billion)
- ❖ Project implementation period: **18 months** (July of year 1 to December of year 2)





Notification

1

PROGRAM NATURE

This is an R&D project.

Research outcomes, facilities, and technologies from Korea's pilot program belong to Korean institutions. Use, transfer, or lease requires consultation between Korean institutions and local/MDB partners.



2

COOPERATION FOCUS

A research and innovation partnership.

The cooperation identifies areas of practical technological suitability, generates evidence, and disseminates results.



3

BUDGET FLOW

The budget is disbursed to and executed by Korean R&D institutions.

Funding flows directly to Korean research institutions responsible for carrying out the demonstration activities.



05 Key Activities

Year
1

Local Adaptation, Design & Installation (Preparation Phase)

- ❖ **Demonstration preparation and site assessment** Conduct local environmental surveys, stakeholder consultations, and finalize prototype and demonstration facility specifications.
- ❖ **Local adaptation design and manufacturing** Adapt technology and components to developing country conditions; design, manufacture, factory-test, and transport demonstration systems.
- ❖ **On-site installation and commissioning** Install locally adapted demonstration systems and complete initial commissioning and trial operation.

Year
2

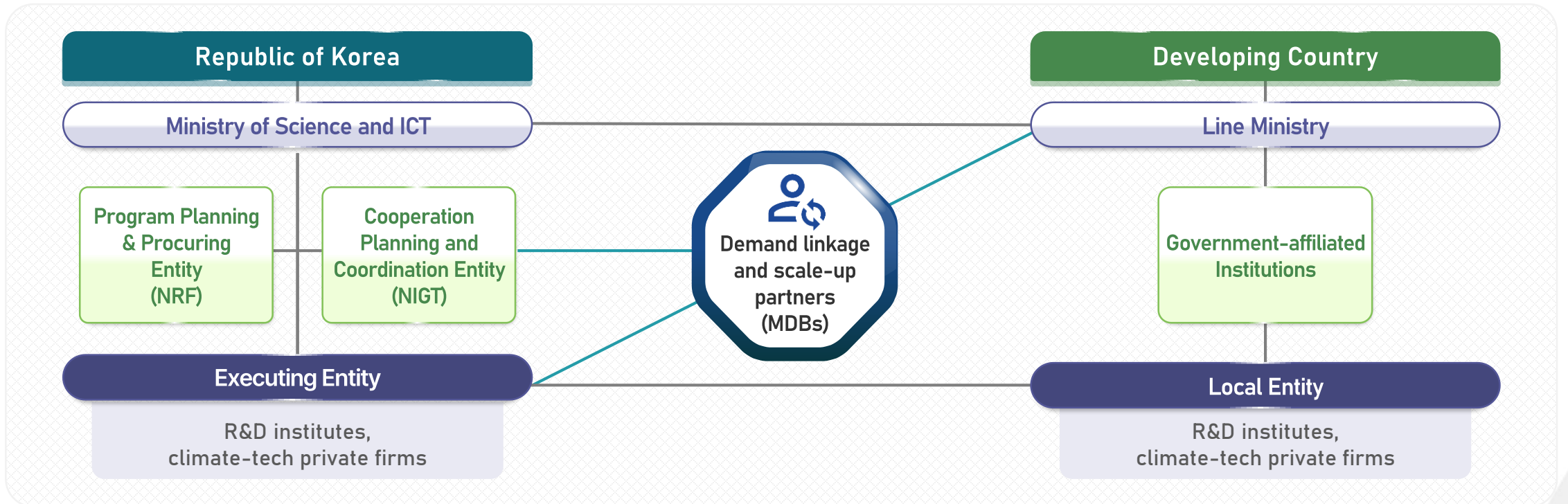
Operation, Performance Validation, and Scale-up Preparation

- ❖ **Full-scale demonstration operation** Operate demonstration facilities under real local conditions, implement real-time monitoring, and apply technical improvements as needed.
- ❖ **Technical performance validation** Analyze demonstration results, monitor performance indicators, and conduct MRV of GHG mitigation and adaptation benefits.
- ❖ **Stakeholder technical training** Deliver training programs for local operators and stakeholders on technology operation, maintenance, and management of demonstration facilities.
- ❖ **Commercialization and viability assessment** Evaluate local technology acceptance, economic and financial feasibility, environmental and social impacts, and overall bankability.
- ❖ **Follow-on project pipeline development** Identify technology transfer and scale-up pathways, hold consultations with local institutions and international partners, and prepare full-scale project proposals and financing packages.

06 Expected Outcomes

- ✓ **Technology Deployment** Enhanced deployment of Korea's priority climate technologies in developing countries.
- ✓ **Track Record & De-risking** Established portfolio of internationally recognized, locally validated demonstration track records.
- ✓ **Scale-up Pipeline & Commercial Replication** Catalyzed pipeline of large-scale follow-on projects and commercial replication.

07 Cooperation Platform



* NRF : National Research Foundation of Korea (www.nrf.re.kr)

* NIGT : National Institution of Green Technology (www.nigt.re.kr)

08 Timeline



*The above schedule is subject to change depending on circumstances.

1



MONGOLIA

National-Level ESS Central Dispatch System for Grid Stabilization

OBJECTIVE

Demonstrate ACE-based AGC technology for large-scale transmission-level ESS to address grid inertia decline from expanding renewables, demonstrated at Mongolia's NDC live grid.

KEY ACTIVITIES

- ACE-based AGC algorithm for large-scale ESS
- Transmission-level ESS dispatch integration
- Live demonstration at Mongolia NDC center
- Automated frequency response & monitoring

OUTCOMES

- National ESS AGC system deployed
- Grid stability under high renewables
- Scalable model for Central Asian markets

2



TANZANIA

AI-Based Extreme Climate-Adaptive Railway Safety Control

Advance smart detection, early warning & active response for railways through in-country demonstration in Tanzania and establish official track record for global infrastructure markets.

- AI smart sensing for extreme weather events
- Real-time early warning for railway hazards
- Active response & automated safety control
- Linkage with international infrastructure programs

- Climate-resilient AI safety system validated
- Official track record for global project bids
- Exportable platform for Sub-Saharan Africa

3



KYRGYZSTAN

AI-Based Dairy Livestock Methane Emission Estimation Model

Develop an AI model for estimating methane emissions using local dairy livestock biometric & nutritional data in Kyrgyzstan and establish data-driven methane reduction strategies.

- Local dairy biometric/nutritional data analysis
- AI model training for methane estimation
- Validation against Kyrgyz field measurements
- Evidence-based methane reduction strategies

- Localized AI methane estimation model
- Methane reduction policy framework
- Contributing to NDC climate targets



Proven in Korea.

Validated globally.

From R&D to real-world impact.

