

# Collaborative Research, Development and Demonstration Activities

26th Advisory Board Meeting  
CTCN Secretariat  
Agenda item 20



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# **Collaborative RD&D Strategic Framework for CTCN (2025-2030)**

# Collaborative RD&D Strategic Framework for CTCN (2025-2030)

- **Proposed and discussed at the 25<sup>th</sup> CTCN AB meeting in April 2025**
- **Background**
  - ✓ **CTCN's Mandate on cRD&D:** As the implementation arm of the UNFCCC Technology Mechanism, CTCN promotes climate technology transfer through TA projects, knowledge sharing, and network collaboration. The PALO in Songdo serves as a Centre of Excellence for cRD&D.
- **Objective and Concept**
  - 1) **Objective of cRD&D** is to systematically support developing countries in responding to climate change, promote sustainable technology transfer, and contribute in the long term to their NSI and endogenous capacity building.
  - 2) **Concept of cRD&D:** “A range of activities related to research, development, and demonstration of climate technologies based on a mutually beneficial collaboration between technology providers and demanders, contributing to the national system of innovation and endogenous capacity building for developing countries.”
  - 3) **cRD&D involves** multiple countries or regions jointly conducting or funding RD&D activities spanning the technology life cycle from Research (TRL1) to Demonstration (TRL7)

# Collaborative RD&D Strategic Framework for CTCN (2025-2030)

## Proposed Activities:

- 1) **Joint development of cRD&D projects between recipients and providers (The earliest proposed action in 2026)**  
: **Establish an opportunity for pre-discussions (e.g. forum or seminar) and operate the Steering Group**
  - Facilitating Information Sharing & Communication
  - **Capacity Building & Knowledge-Sharing Events**
  - Expanding Stakeholder Participation:
  - **Online & In-Person Collaboration Platforms**
- 2) **Tailored support strategies aligning with each cRD&D phase**
  - National Innovativeness, Climate Technology Cooperation Readiness
- 3) **Funding for cRD&D projects**
  - **Designated funding for cRD&D projects**
  - Establishing 'Project Pipelines'
- 4) **Project management**
  - Establishing a Project Management System for cRD&D
  - Identify success factors and lessons from completed cRD&D projects
  - Monitoring and Evaluation of cRD&D projects
- 5) **Knowledge sharing and capacity building**
  - **Facilitate cRD&D Related Knowledge Sharing and Capacity Building**

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## cRD&D Events and Engagements

# Collaborative RD&D Activities in 2025

## 2025 January Global NDE Participation Survey

### **Duration: January 2025**

**Purpose:** collection of needs for preparation of proposed activities in advance and raising awareness

### **Scope**

#### **Module 1: Global Thematic Capacity Building Program (climate technology and finance)**

- 1) CTCN-GCF Stakeholder Meeting (i.e. NDEs discuss TAs under pipeline/implementation/near completion with the country NDA)
- 2) Region-driven climate technology and finance linking meeting (i.e. NDEs discuss TAs with region-specific climate financing entities)
- 3) FinTech Online Course (i.e. NDEs can either learn about FinTech or nominate colleagues who may need knowledge on FinTech)

#### **Module 2: Network Engagement Programs**

- 4) Voluntary Technology Talk (i.e. NDEs either attend or nominate a colleague to attend exhibition on climate/env technologies)
- 5) Co-creating Collective Solutions (i.e. NDEs learn and provide feedback on technology solution showcased by Network members)

#### **Module 3: Collaborative RD&D Programs**

6) Collaborative RD&D workshop (i.e. an introduction to the CRD&D concept and strategy developed by CTCN) : **October Webinar**

7) **Collaborative RD&D Bridge-building Workshop on Energy Storage Systems**

(i.e. NDEs identify national climate experts on ESS).

8) **Learning Visit**

(i.e. NDEs support offering knowledge exchange opportunities to identified national climate experts on Green hydrogen, fuel cell and ESS)

# Collaborative RD&D Activities in 2025 Learning Visit and CRD2B2 Workshop

**For the invitation to Learning Visit and CRD2B2 Workshop, Countries expressed the preference to Module 3 (Collaborative RD&D Programme) were collected as shown in the following slides.**

## **Additional considerations**

- 1) New countries and geographical distribution
- 2) For Green hydrogen topic, the countries have the needs for CTCN TAs were considered.
- 3) Budget size: The target number for Learning Visit: 6 (5 were participated due to unexpected circumstances)  
The target number for CRD2B2 Workshop: 9  
(6 were participated due to unexpected circumstances and Visa issuance)

**The global NDE participation survey will be conducted in 2026 and the 2025 survey results will be also considered**

# Collaborative RD&D Activities in 2025

## Learning Visit and CRD2B2 Workshop (AP)

Country	Region	6	7	8	Green hydrogen TA
Cambodia	Asia	0	0	0	0
Georgia	Asia				
Indonesia	Asia	0			
Iran	Asia	0	0	0	
Israel	Asia			0	
Jordan	Asia	0			
Kazakhstan	Asia	0	0	0	
Kyrgyz Republic	Asia	0	0	0	
<b>Malaysia</b>	Asia	0	0	0	
<b>Mongolia</b>	Asia	0	0	0	0
Republic of Armenia	Asia	0		0	
Republic of Uzbekistan	Asia			0	
Sri Lanka	Asia	0	0	0	0
State of Palestine	Asia			0	
Syria	Asia	0	0	0	
<b>Tajikistan</b>	Asia	0	0	0	
Thailand	Asia	0		0	0
Vietnam	Asia	0		0	0
Papua New Guinea	SIDS-P	0	0	0	
<b>Timor - Leste</b>	SIDS-P		0	0	
Samoa	SIDS-P	0	0	0	
Palau	SIDS-P			0	
<b>Maldives</b>	SIDS-P	0	0	0	

### Green hydrogen TA demand

Bhutan, Fiji, Laos, Maldives, Nepal

- 6) Collaborative RD&D workshop (i.e. an introduction to the CRD&D concept and strategy developed by CTCN)
- 7) Collaborative RD&D Bridge-building Workshop on Energy Storage Systems (i.e. NDEs identify national climate experts on ESS).
- 8) Learning Visits (i.e. NDEs support offering knowledge exchange opportunities to identified national climate experts on ESS)

# Collaborative RD&D Activities in 2025

## Learning Visit and CRD2B2 Workshop (Africa)

Country	Region	6	7	8	Green hydrogen TA
Algérie	Africa	0	0	0	
Burundi	Africa	0			
Chad	Africa		0		
Congo	Africa	0	0	0	
Côte d'Ivoire	Africa	0	0	0	
Eswatini	Africa	0			
Ethiopia	Africa	0		0	
Gabon	Africa	0		0	
<b>Gambia</b>	Africa	0	0	0	0
Kenya	Africa	0			
Malawi	Africa	0	0	0	
Senegal	Africa	0		0	0
Somalia	Africa			0	
South Africa	Africa			0	
Sudan	Africa		0	0	
Suriname	Africa	0		0	
Tunisie	Africa	0	0	0	
Uganda	Africa	0	0	0	
<b>Zimbabwe</b>	Africa	0	0	0	0

### Green hydrogen TA demand

Benin, Cameroon,  
DR Congo, Gambia, Ghana, Guinea,  
Guinea-Bissau, Liberia, Mauritania,  
Mauritius, Sao Tome e Principe,  
Sierra Leon, Togo, Zambia

6) Collaborative RD&D workshop (i.e. an introduction to the CRD&D concept and strategy developed by CTCN)

7) Collaborative RD&D Bridge-building Workshop on Energy Storage Systems (i.e. NDEs identify national climate experts on ESS).

8) Learning Visits (i.e. NDEs support offering knowledge exchange opportunities to identified national climate experts on ESS)

# Collaborative RD&D Activities in 2025 Learning Visit and CRD2B2 Workshop (LAC)

Country	Region	6	7	8	Green hydrogen TA
<b>Belize</b>	LA	0		0	0
Grenada	LA	0	0	0	
<b>Panamá</b>	LA	0	0	0	0
Paraguay	LA			0	
República Bolivariana de Venezuela	LA	0			
Saint Kitts and Nevis	SIDS-C		0	0	

## Green hydrogen TA demand

Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Jamaica, Mexico, Uruguay

6) Collaborative RD&D workshop (i.e. an introduction to the CRD&D concept and strategy developed by CTCN)

7) Collaborative RD&D Bridge-building Workshop on Energy Storage Systems (i.e. NDEs identify national climate experts on ESS).

8) Learning Visits (i.e. NDEs support offering knowledge exchange opportunities to identified national climate experts on ESS)

# Learning Visit on Green Hydrogen Production and Fuel Cell

Activity led by the CTCN PALO

**22-24 July 2025**

**Five participants:** Researchers and government officers (Belize, Gambia, Maldives, Panama, Zimbabwe)

**Lectures and Facility Visiting:** the Korea Institute of Science and Technology (KIST), Korea Research Institute of Chemical Technology (KRICT), East West Power Co. Ltd (EWP)

**Technologies:** green hydrogen production and fuel cell, hydrogen storage, hydrogen charging, hydrogen town (RE, fuel cell)

## Outputs:

Coordination for the preparation of CTCN TA request proposal on green hydrogen in Zimbabwe,

R&D collaboration development with The Technological University of Panama (UTP)



# Bridge-Building Workshop 2025

*Activity led by the CTCN PALO*

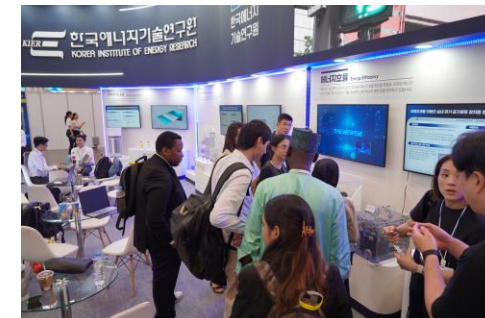
**27 – 29 August, Busan, Korea** in conjunction with World Climate Technology EXPO 2025 (participated in 2023 and 2024)

Three NDEs (Gambia, Tajikistan, Zimbabwe) and three NDE representatives (Malaysia, Panama, Timor-Leste)

**Objective:** To foster Global South-South, North-South, and Triangular partnerships on collaborative RD&D

## Outputs

- Presentation on barriers, enablers and collaboration for the deployment of energy storage system (ESS)
- Voluntary technology talks with companies and organizations
- Bilateral meetings with CTCN Network Members
- Collaboration development with Hyundai Motors CMK Foundation



# UNFCCC TM Collaborative RD&D Session on Accelerating the Deployment of Energy Storage

**14:00 – 16:10, 29 August 2025 during CRD2B2 Workshop (support from CMKF, NIGT and KIER)**

**Opening remarks** Stephen Minas, CTCN AB Chair and Dietram Oppelt, TEC Chair (video)

**Presentations by UNFCCC Secretariat** on TEC policy brief on Accelerating the Deployment of Energy Storage to Advance Clean Energy Transitions

**Researchers** from Korea Institute of Energy Research (KIER) and National Institute of Green Technology (NIGT)

- Collaborative RD&D CTCN TA in Papua New Guinea (Salt gradient energy and blue battery)
- PV-ESS Microgrid Solutions in Honduras and Microgrid Technology Powered by RE and BESS

**Panel discussion:** presenters and NDE of Gambia and NDE representative of Panama

**Key message:** To accelerate the R&D and deployment of the energy storage, the integration of policy and regulatory, technical, institutional, and financial enablers including the commitment of government, incentives, stakeholder engagement and business model and international RD&D and deployment collaboration are needed.



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## Piloting cRD&D TA Projects

*Activity led by the CTCN PALO*

## 1. CTCN TA support for pre-feasibility for small-scale demonstration:

- **Papua New Guinea:** Pre-feasibility study on ocean energy focusing on salinity gradient energy technology and electrochemical ocean thermal energy conversion

Implementing partner: Korea Institute of Energy Research (KIER)	Duration: Sep. 2024 – <b>Dec. 2025</b>
Budget: USD 246,500	Current status: Under implementation
<p>Objective: to conduct a pre-feasibility study on ocean energy, specifically focusing on <b>Salinity Gradient Energy Technology and e-OTEC, including Blue Battery</b> Technology.</p> <p>Outcome: to elevate PNG's technical knowledge and capabilities in these areas, offering vital data to streamline policy and strategic development, thereby <b>facilitating the adoption and expansion of ocean energy projects.</b></p>	

- **Uzbekistan:** Pre-feasibility study for groundwater desalination and resource recovery in Uzbekistan (IP: Korea Institute of Industrial Technology (KITECH), Response Plan under development)

Objective: to enable Uzbekistan to **enhance its climate adaptation efforts**, specifically by preparing for pilot-scale processes that can **treat saline groundwater and recover valuable minerals.**

*Activity led by the CTCN PALO*

## 2. CTCN TA support for feasibility towards RD&D:

- **Bangladesh:** Feasibility research of **Solar Electric-Based Cold Warehouse equipped with Low-temperature Latent Heat Material for Fruit Storage** in Bangladesh Climate Conditions

Implementing partner: KITECH	Duration: Mar. 2025 – Feb. 2026
Budget: USD 250,000	Under implementation

**Objective:** To introduce Solar Electric-Based Cold Warehouse equipped with Low-temperature Latent Heat Material for Fruit Storage in Bangladesh Climate Conditions. It is a strategic intervention to address technological, logistical, and environmental challenges facing **the agricultural sector**, with the potential to **significantly reduce post-harvest losses** and contribute to the country's **broader development goals**.

- **Côte d'Ivoire:** Development of Sustainable Biochar Production and Application for Climate Mitigation and Adaptation in Côte d'Ivoire (IP: KIER, Response plan is under development)

**Objective:** to support Côte d'Ivoire in establishing a sustainable biochar production system using agricultural residues and to enhance the country's capacity to **mitigate and adapt to climate change by reducing deforestation**, improving **waste management**, and providing **a sustainable energy source**.

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## Future outlook

# Collaborative RD&D: Tentative Plan in 2025 and 2026

- **TM Webinar on the introduction of cRD&D for NDEs and CTCN Network Members on 28 October**  
**Lead by HQ CB and NE Team, 10:00-11:30 (CET) and 16:00-17:30 (CET)**
- **The Steering Group (SG) Virtual Meeting in November 2025**  
**CTCN Secretariat, Korean GRIs: cRD&D needs identification and sharing of policy research results and survey**
- **SIDS NDE Forum: cRD&D needs identification and data collection on RD&D collaboration among academia and research institutes in SIDS, especially in the Pacific**
- **Global NDE participation survey 2026**
- **Learning visit on Green hydrogen production and fuel cell (3<sup>rd</sup>)**
- **Collaborative RD&D Bridge-building (CRD2B2) Workshop on Energy storage (2<sup>nd</sup>) with learning visit on Energy storage (Policy, Technology (Public and Private) and Projects)**
- **Implementation of CTCN TAs**
  - Completion of Papua New Guinea and Bangladesh TAs
  - Implementation of Côte d'Ivoire and Uzbekistan TAs
- **Establish an opportunity for pre-discussions (e.g. forum, etc.,) and operate Steering Group based on the strategic framework**



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