

Status of CTCN TAs and TEC policy work related to collaborative RD&D Demand and related programmes

Asia NDE Forum
1 September 2025


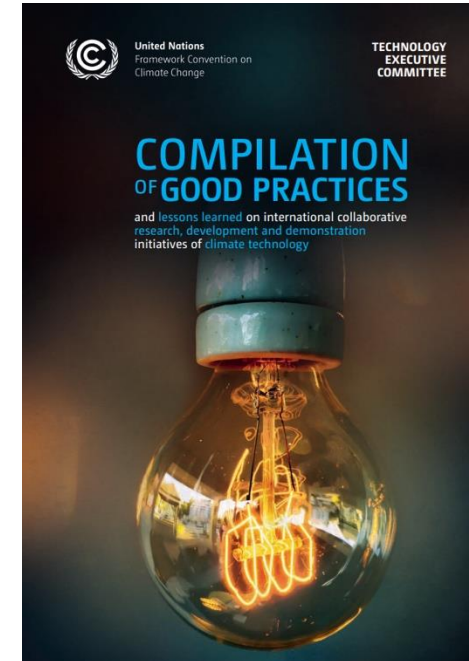


United Nations Climate Change
Technology Executive Committee



Taeyoon Kim, Programme Officer, UNFCCC secretariat
Suil Kang, Coordination Officer, CTCN secretariat

- The TEC emphasizes the need to accelerate and strengthen technological innovation
- Fostering innovation can be done through new collaborative approaches to climate technology RD&D
- The TEC produced a compilation of good practices and lessons learned on countries' RD&D in 2021.
- In 2023 a survey was conducted on the current and future global RD&D needs on mitigation technologies
- The survey focuses on the assessment of mitigation technology RD&D needs between now and 2030 – 2035.



Participant Overview

- 307 participants
- 25% Female, 70% Male
- 73% completion rate
- >70 hours of expert knowledge

RD&D needs in early-stage mitigation technology

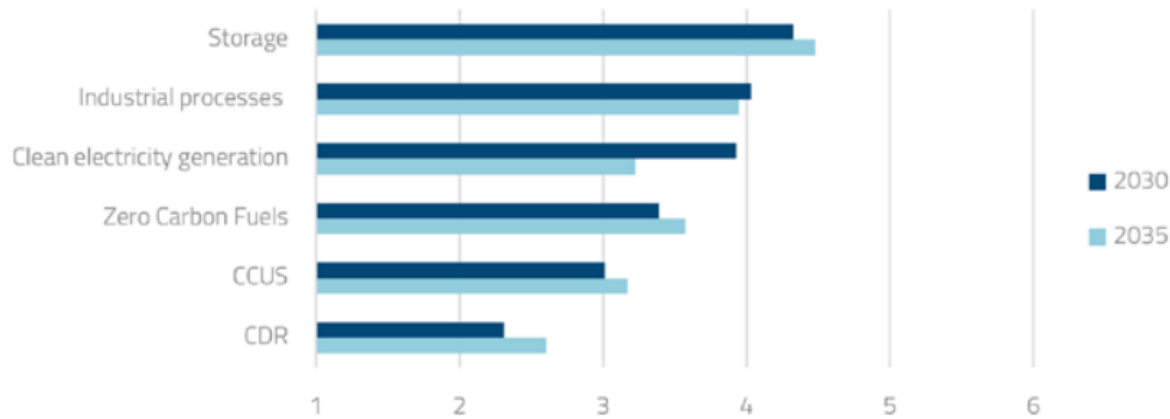


Figure 16: RD&D Priorities Early-Stage Technologies | 2030 & 2035

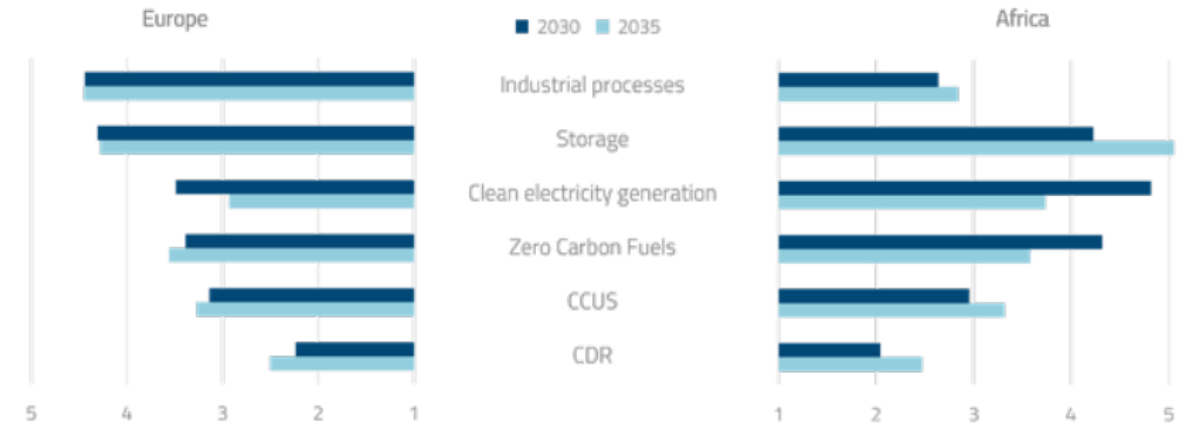


Figure 17: RD&D Priorities Mature Technologies | 2030 & 2035 | Developing vs. Developed Economies

Ranking

(according to respondents)



- As per the TEC Rolling Workplan for 2023-2027 and the survey results, the TEC is to prepare a knowledge product on energy storage by 2026.
- Energy storage is a pivotal technology for achieving the Paris Agreement's temperature goals by enabling the large-scale integration of renewable energy.
- Objective of the policy brief is to analyse various types of energy storage and provide recommendations for policymakers to support their development and integration.



Activity led by the CTCN PALO Office

1. Learning Visit on Green Hydrogen Production

- 2023: Expression of Interests from NDEs of Cambodia, Mongolia, Thailand and Vietnam participated in **2023 Capacity building workshop on Green Hydrogen**, invited in 2024
- 2024: Timor-Leste and Global NDE Participation Survey (Next slides), Global 9 Researchers, invited in 2025

2. Collaborative RD&D Bridge-Building (CRD2B2) Workshop

- 2024: Global Clean Tech Innovation Index (Global 17 NDEs)
- 2025: Global NDE Participation Survey (Next slides): Global 9 NDEs

3. CTCN TAs

- Dialogue with MSIT(ROK) and KIER during COP28
- The establishment of Steering Group with Korean GRIs
: Papua New Guinea, Bangladesh, Côte d'Ivoire, Uzbekistan
- Expression of Interests: Thailand (e-Methanol Production) and Indonesia (Biomass utilization)

CTCN Collaborative RD&D Demands in Asia and the Pacific: 2025 Global NDE Participation Survey

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	
Malaysia	Asia	0	0	0	
Mongolia	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	
Tajikistan	Asia	0	0	0	
Thailand	Asia	0		0	0
Vietnam	Asia	0		0	0
Papua New Guinea	SIDS-P	0	0	0	
Timor - Leste	SIDS-P		0	0	
Samoa	SIDS-P	0	0	0	
Palau	SIDS-P			0	
Maldives	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);

CTCN Collaborative RD&D Demands in Africa : 2025 Global NDE Participation Survey

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	
Gambia	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	
Zimbabwe	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);

CTCN Collaborative RD&D Demands in LAC : 2025 Global NDE Participation Survey

Country	Region	6	7	8	Green hydrogen TA
Belize	LA	0		0	0
Grenada	LA	0	0	0	
Panamá	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);

Collaborative RD&D: A Steering Group (SG) for Needs identification from K-GRIs

Activity led by the CTCN PALO Office

Establishment of a Steering Group to identify CTCN TAs for collaborative RD&D

- **SG members:** CTCN and Korean Government-affiliated Research Institutes, global expansion per CTCN collaborative RD&D Strategy
- **Objective:** Collect potential climate technologies for RD&D collaboration and identify NDE-submitted TA requests for implementation (pre-feasibility and feasibility).

Collaborative RD&D: Piloting RD&D Technical Assistance 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 – Dec. 2025
Budget: USD 246,500	Current status: Under implementation
Objective: to conduct a pre-feasibility study on ocean energy, specifically focusing on Salinity Gradient Energy Technology and e-OTEC, including Blue Battery Technology. Outcome: to elevate PNG's technical knowledge and capabilities in these areas, offering vital data to streamline policy and strategic development, thereby facilitating the adoption and expansion of ocean energy projects.	

- **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.**

Collaborative RD&D: Piloting RD&D Technical Assistance Projects

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**.

Collaborative RD&D: Webinar Series on collaborative RD&D in 2023

Sessions	Target Regions	Partners
Session 1: WEF Nexus	Asia and the Pacific and Africa	FAO, STEPI, and One World
Session 2: Nature-based solutions Buildings and Resilient Infrastructures	LAC	IICA, CATIE, and KEI
Session 3: Energy Systems	Africa	IEA, NREL and University of Mauritius
Session 4: Business and Industry	Middle East and North Africa	Expo Live Innovation Programme Global Digital Innovation Network GCCA – Global Cement and Concrete Association
Session 5: Sustainable Mobility, a solution for reducing carbon emissions	Asia and the Pacific	UNEP-CCC, KNUT, KAPSARC

Collaborative RD&D: Learning Visits

Activity led by the CTCN PALO Office

Target Audience: NDEs, officers from line ministries and researchers

Learning Visit on Green Hydrogen Production 25 - 27 June 2024 (5 researchers and 4 government offices nominated by NDEs from Cambodia, Mongolia, Thailand and Vietnam)

Objective: Gain knowledge on green hydrogen production and facilities and build capacity in research and certification.

Follow-up: Ongoing discussions RD&D collaboration between Thai researchers and the Korea Institute of Energy Research.



Collaborative RD&D: Learning Visit on Green Hydrogen Production and Fuel Cell

Activity led by the CTCN PALO [Exploring the Future of Clean Energy: South Korea hosts a Green Hydrogen Learning Visit | Climate Technology Centre & Network | Wed. 08/06/2025](#)

22-24 July 2025

Five participants: A professor from Panama, An expert from private sector of Zimbabwe, and three government officers from Belize, Gambia and Maldives

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 via Proton Exchange Membrane (PEM), Anion Exchange Membrane (AEM), and Solid Oxide (SO) water electrolysis, Hydrogen storage using Liquid Organic Hydrogen Carriers (LOHC), Energy production using Solid Oxide Fuel Cells (SOFC), Electrochemical hydrogen storage using a palladium membrane, A 3.4 MW solar farm integrated with alkaline water electrolysis, Hydrogen charging, Hydrogen town

Outputs: Coordination for the preparation of CTCN TA request proposal on green hydrogen in Zimbabwe, R&D Collaboration development with University in Panama



Collaborative RD&D: Bridge-Building Workshop 2024

Activity led by the CTCN PALO

28 October – 1 November 2024, Seoul and Incheon, Korea

21 participants including 6 NDEs from 17 countries

-AP 11, Africa and Middle East 5, LAC 1 (Brazil))

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

Outputs

- Dialogue between **Thailand NDE and KIER team** for the joint RD&D on green hydrogen production
- **The GreenEnerTEC:** 31 bilateral meetings with participating companies.
- **Incheon International Environmental Technology CONFEX** co-organized with Incheon Innovation Cluster (IIC, INNOPOLIS+): 19 bilateral meetings with participating companies



Collaborative RD&D: 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, Zimbabwe, Tajikistan) and NDE representatives (Malaysia, Panama, Timor-Leste)

Objective: To foster Global South-South, North-South, and Triangular partnerships on collaborative RD&D, to facilitate the voluntary technology talks and bilateral meetings with CTCN Network members for future collaboration with private sectors and development of CTCN TA projects

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 (Nuri Flex, KIER, NIGT, Horin) and Hyundai Motors CMK foundation



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

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

14:00 ~ 14:15	<p>Opening Remarks (Video Clips) Stephen Minas, CTCN AB Chair Dietram Oppelt, Technology Executive Committee (TEC) Chair</p>
	<p>Congratulatory Remarks Jaeho Choi, Secretary General, Hyundai Motor Chung Mong-Koo Foundation</p>
14:15 ~ 14:30	<p>Group Photo</p> <p>[Presentation 1] Introduction of the UNFCCC Technology Executive Committee's Work on Energy Storage to Advance Clean Energy Transitions Taeyoon Kim, Programme Officer, UNFCCC Secretariat</p>
14:30 ~ 14:50	<p>[Presentation 2] Introduction to the Papua New Guinea Ocean Energy CTCN TA Project Dr. Han-ki Kim, Senior Researcher, Chief of Distributed Energy Team, Korea Institute of Energy Research (KIER)</p>
14:50 ~ 15:10	<p>[Presentation 3] Advancing Global RD&D and Deployment of PV-ESS Microgrid Solutions: The Case of Guanaja Island, Honduras Dr. Hyung Ju Kim, Principal Researcher, Center for Global Strategy, National Institute of Green Technology (NIGT)</p>
15:10 ~ 15:30	<p>[Presentation 4] Microgrid Technology Powered by Renewable Energy and Battery Storage Systems Dr. Dae-jin Kim, Principal Researcher, Chief of Electric Power System Research Laboratory, KIER</p>
15:30 ~ 15:45	<p>[Presentation 5] KIER K-Energy Commercialisation Strategy & Achievements (KIER Global-up Program) Dr. Zhunwoo Kim, Principal Research Engineer, Chief of Technology Commercialization Team, KIER</p>
15:45 ~ 16:10	<p>Panel Discussion Presenters and NDEs from Panama and Gambia</p>

Collaborative RD&D: COP29 side event: Partnership with Greek Pavilion

Date: 20 November 2024 (COP29), **Venue:** Greek Pavilion

Objective: To explore strategies for strengthening National Systems of Innovation (NSI) and advancing collaborative research, development and demonstration (RD&D)

Moderator: CTCN AB Vice-Chair **Stephen Minas**

Panel discussion:

Edeltraud Guenther (Director of UNU-FLORES)

Three critical perspectives to enhance the success of innovation and deployment:

- 1) Planning for impact from the outset
- 2) Tailoring national innovation systems to the specific needs of sectors and contexts
- 3) Considering key factors such as power dynamics, legitimacy, and urgency

Joel Onyango (African Centre for Technology Studies)

For fostering, scaling, and commercializing innovations:

Localization (developing solutions by local people for local challenges) and sustainability as key.

The need for a clear commercialization strategy to ensure innovations remain viable

The empowerment of local agency



Collaborative RD&D: Partnership with CGEE (Brazil), follow up of COP29

Organization: Centro de Gestao e Estudos Estrategicos (CGEE), The Brazilian Center for Strategic Studies and Management

Virtual Meeting Dates: 31 January, 13 February, and 27 February, 2025

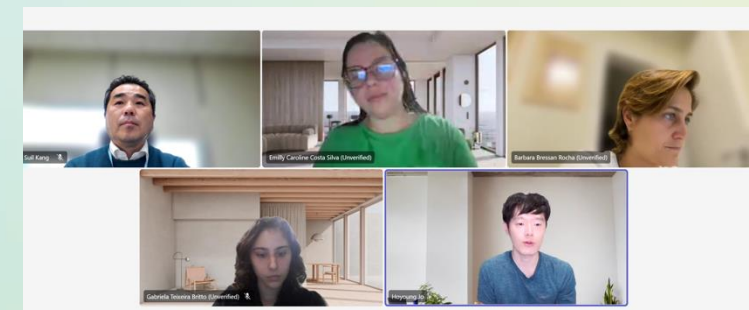
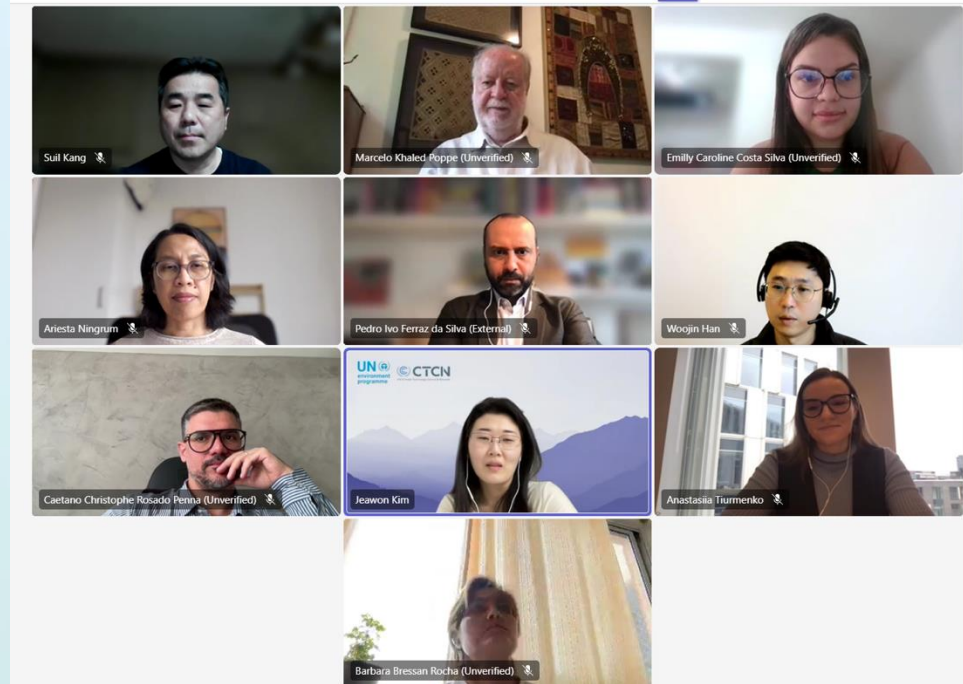
Objectives: To understand the functions and activities of CTCN and CGEE including technical assistance, **collaborative RD&D** and capacity building and to develop collaboration in innovation and technology development and transfer

Key participants: Ariesta Ningrum, CTCN Director

Pedro Ivo Ferraz da Silva (TEC Member, Ministry of Foreign Affairs of Brazil)

Emily Caroline Costa Silva (CTCN AB Member, RINGO)

Follow-up: Application to CTCN Network Member and Implementation of collaboration



Collaborative RD&D: Partnership with Korean Government-affiliated Research Institutes (K-GRIs)

Dates: 25 February (NIGT, KIER, KIST, KRICT) and 26 February (Visiting KIST campus) 2025 during **CTCN Director's mission to Korea**

Objectives:

To explore climate RD&D projects (Visiting KIST Campus)

To introduce PALO collaborative RD&D activities in 2024 and 2025

To listen experiences and lessons learned of K-GRIs from collaborative RD&D activities and

To enhance collaboration between CTCN and K-GRIs (NIGT, KIST, KRICT and KIER) in collaborative RD&D, especially TA implementation and scale-up



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

- **Proposed and discussed at the 25th 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**
 - 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

Webinar : Introduction of Collaborative RD&D

- **Format: Online webinar (MS Teams)**
- **Date: 28 October 2025 (TBC)**
- **Time:** The webinar will be conducted online and made available in two sessions tailored by time zone
 - 1) 10:00-11:30 (CET)
 - 2) 16:00-17:30 (CET)
- **Target Audiences: NDEs and CTCN Network members**
- **Agenda (TBC)**
 - Welcome Remarks (CTCN Director)
 - Introduction to the UNFCCC TM (TEC Secretariat)
 - Introduction to the CTCN's cRD&D (CTCN PALO)
 - cRD&D TA Portfolios (CTCN regional teams)
 - Q&A Session
 - Closing Remarks (TBD)

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