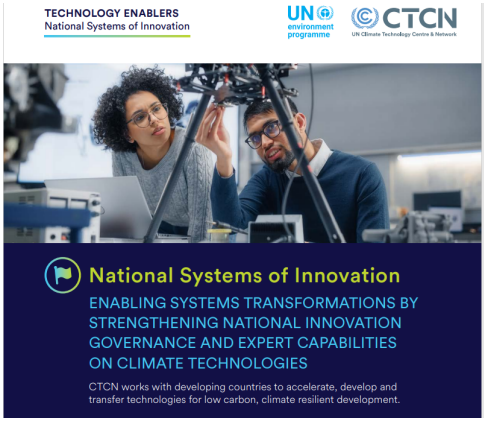
Advisory Board to the Climate Technology Centre and Network (CTCN)
23rd Meeting

19 – 24 April 2024
AB/2024/23/16.1

2023 Annual Operating Plan Report



Contents

I. Introduction

2023 marked the first year of implementation of the CTCN's third Programme of Work (PoW) for the period 2023 - 2027[1]. The CTCN's third PoW was launched as part of the Technology Mechanism Joint Work Programme to accelerate the deployment of transformative climate technologies that are urgently required to tackle climate change. The joint work programme is a significant milestone for the Technology Mechanism and signals a new era of work for climate technology under the Convention and the Paris Agreement, as well as the beginning of an unprecedented level of cooperation and collaboration between the two bodies.

Covering the timeframe of 2023-2027, the joint work programme of the Technology Mechanism encompasses collaborative activities between the TEC and the CTCN, the TEC's Rolling Workplan, and the CTCN's PoW for the same period. The third PoW of the CTCN continues to deliver on the CTCN's mandate to respond to country-driven requests and maintains its alignment with the technology framework. It also introduces a focus on two proven technology enablers—National Systems of Innovation and Digitalization—and five global systems, including the water-energy-food nexus, buildings and infrastructure, sustainable mobility, energy systems, and business and industry.

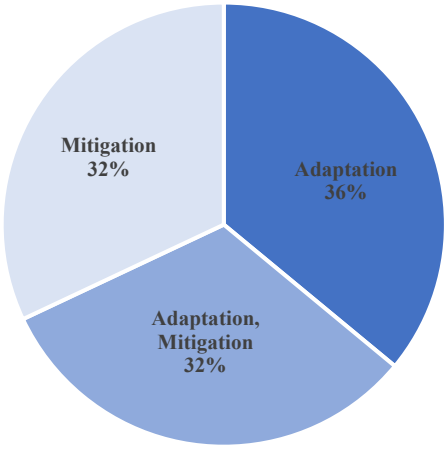
The 2023 Annual Operating Plan report presents the CTCN's activities conducted between January and December 2023, following the approved activities and budget for 2023 set by the CTCN Advisory Board[2]. It is structured around the five themes of the Technology Framework, while also incorporating the two enablers and five key system transformation areas outlined in the third Programme of Work.

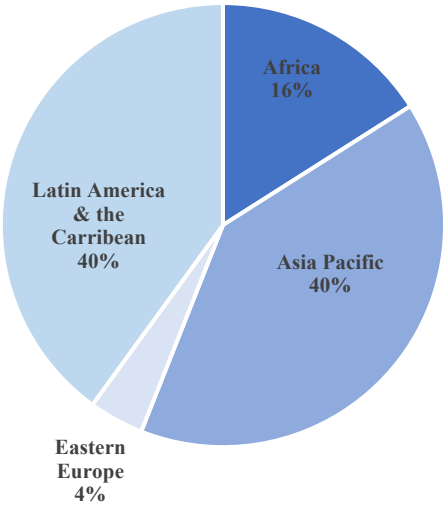
[1] https://www.ctc-n.org/resources/ctcn-third-programme-work-2023-2027
[2]https://www.ctcn.org/sites/default/files/AB.2022.20.18.1%20CTCN%202023%20Annual%20Operating%20Plan%20DRAFT.pdf

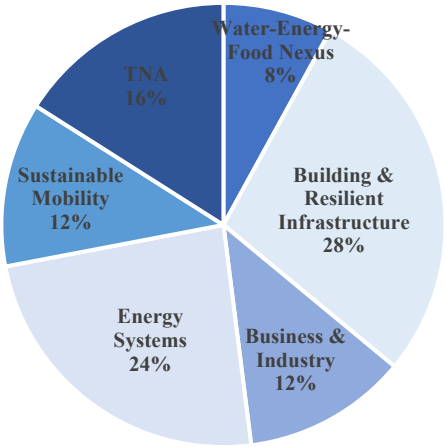
II. CTCN in 2023 by Numbers

127 Technical Assistance interventions at various stages of implementation[3]

25 Technical Assistance interventions completed in 2023.







4 AFCIA[4] TAs completed.

6 GCF readiness projects completed

2 Pro-bono TAs funded by the Republic of Korea

22 policies, strategies, plans, laws, agreements, or regulations supported by the CTCN technical assistance

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15 Global Capacity Builidng Programmes organized by the CTCN in 2023 attracting over **1,100** participants

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39 new network members have joined the CTCN in 2023, bringing the total number of members to **835**.

[3] Including design/new request stage, bidding stage, implementation stage, and completion stage
[4] Adaptation Fund Climate Innovation Accelerator; more information available at: https://www.ctc-n.org/technical-assistance/adaptation-fund-climate-innovation-accelerator-afcia

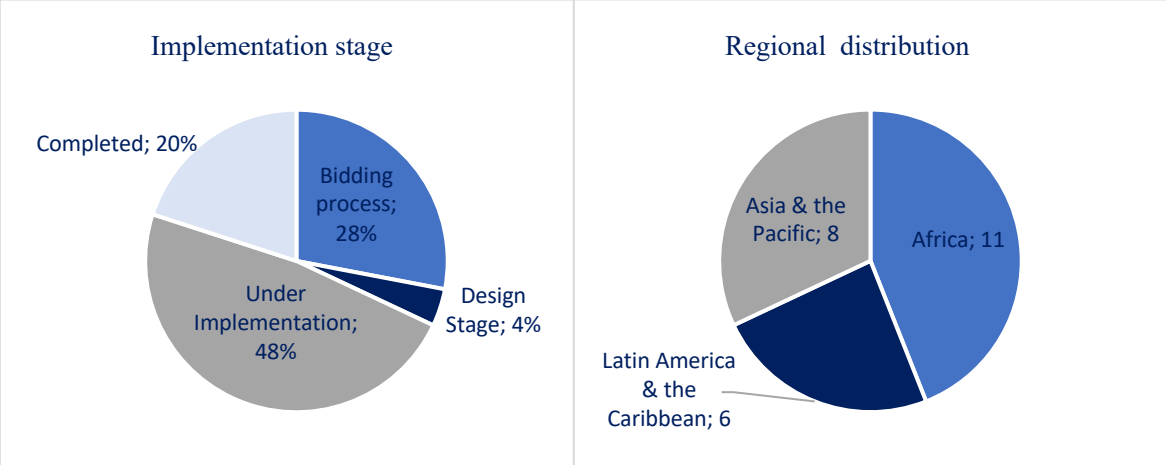
III. Innovation

CTCN Technical Assistance projects centered on the theme of innovation.

The Adaptation Fund Climate Innovation Accelerator (AFCIA)

Since 2020, CTCN has been implementing projects under the first edition of the Adaptation Fund Climate Innovation Accelerator (AFCIA)[5] to foster innovation in adaptation in developing countries.[6] As part of this programme, the CTCN has received over 500 TA requests on innovative adaptation technologies from more than 105 countries. 25 TAs were selected and are at different stages of implementation, 4 of which have been completed in 2023. Furthermore, two 5 million USD concept notes were developed for submission to the Adaptation Fund Innovation Facility for scaling up successful initiatives.

AFCIA Implementation Dashboard (as of 31 Oct. 2023)[7]:



AFCIA projects completed in 2023:

Honduras	Designing nature-based solutions with an ethnic and gender-equity approach, to increase the resilience of rural mountain communities in protected natural areas affected by extreme weather events in Honduras
Mongolia	Enhancing climate resilience and economic sustainability of livestock farming in a rural community of Mongolia
Saint Kitts and Nevis	Increase the water supply system resilience by managing aquifers recharge (MAR) and incorporating drought risks modelling as a planning tool for climate change adaptation measures
Vietnam	Localization of water resources management technology to adapt to climate change in Hong-Thai Binh River basin
Concept notes submitted to the Adaptation for scaling up successful initiatives:	
Seyshelles	Formulation of a Pre-Concept Proposal to the Innovation Facility of the Adaptation Fund, for a holistic watershed management
Burundi	Enhancing resilience to flood and drought through a unique combination of innovative climate adaptation tools, technologies, and practices in Burundi

[5] The first edition of the AFCIA had a USD 10 million small-grant aggregator programme implemented by the United Nations Development Programme (UNDP) and UNEP in conjunction with CTCN.
[6] https://www.ctc-n.org/technical-assistance/adaptation-fund-climate-innovation-accelerator-afcia
[7] https://www.ctc-n.org/sites/default/files/resources/CTCN_AFCIADashboard_Final.pdf

EU-funded climate change and security programme

In collaboration with the European Commission, the CTCN launched in June 20238 a new 3 million USD programme to support up to 10 innovative community-based climate technology projects for communities at risk of conflicts due to climate impact.9

CTCN Capacity Building initiatives focused on the theme of innovation

The capacity building programmes of the CTCN encompassed a variety of activities aimed at fostering innovation. These initiatives included field visits, bilateral meetings with Network members and potential implementers to explore pro-bono opportunities, and peer-to-peer learning workshops designed to facilitate the development of multi-country projects among nations with similar technology innovation needs. Additionally, whenever feasible, efforts were made to coordinate capacity building workshops with relevant conferences or exhibitions, allowing for the participation of National Designated Entities (NDEs) and stakeholders facilitated by the CTCN.

SF6 Learning Programme: Technologies for decarbonization of electrical transmission and distribution grids through F-gas regulations and policies,

In 2023, the CTCN, in collaboration with National Designated Entity of Germany and the German Ministry of Economic Affairs and Climate Action (BMWK), organized a three-day SF6 Learning Programme attended by approximately 40 participants10. Among them were stakeholders from NDEs, energy ministries or utilities from 11 developing countries worldwide, along with representatives from technology providers and financial institutions. As part of the programme, participants visited the technology facilities at Siemens AG, Siemens Energy, and Nuventura to learn more about innovations in SF6-free switchgear.

Following the SF6 Learning Programme and presentations on SF6 at regional climate weeks, the CTCN received numerous requests and expressions of interest for support in the phase-out of SF6.

[8] https://www.ctc-n.org/news/climate-change-and-security-joint-eu-ctcn-programme
[9] https://www.ctc-n.org/technical-assistance/climate-change-and-security
[10] Embracing SF6-Free Technologies: Paving the Way to Net-Zero Energy Systems | Climate Technology Centre & Network | Wed, 08/02/2023 (ctc-n.org) and SF6-free Technologies for Net-zero Energy Systems: Learning Exchange Event | Climate Technology Centre & Network | Mon, 06/26/2023 (ctc-n.org)

Region	Thematic Focus	Partners	Participants
Global	SF6-free Technologies for Net-zero Energy Systems	German Federal Ministry for Economic Affairs and Climate Action (BMWK). Siemens AG, Siemens Energy, Nuventura German Environmental Agency. 50 Hertz GIZ; Perspectives Climate Group; Euler Hermes; European Investment Bank	40 participants: *Energy ministries or utilities from 11 developing countries (Chile, Mexico, Ghana, Kenya, Uganda, Egypt, Lebanon, Thailand, Timor Leste, Vietnam, and Senegal) *Representatives from technology providers, environmental and financial institutions

Global Capacity Building Programme on Green Hydrogen

Countries worldwide are increasingly focusing on Green Hydrogen, with a growing interest in supporting and developing national energy policies that integrate comprehensive Hydrogen Strategies aimed at achieving zero emission pathways.

In 2023, the CTCN initiated a global capacity building programme on green hydrogen for system transformation tailored to the knowledge and needs of each region. The CTCN invited 105 NDEs to exchange theories and applications on hydrogen technologies for future RD&D collaboration. Three tailored trainings were planned respectively for the Asia Pacific, LAC, and Africa regions

Table 1. Global Capacity Building Programme of Green Hydrogen

Region	Thematic Focus	Partners	Participants
Africa	Green Hydrogen Technology in Energy and Business & Industry Sectors	BOAD African Hydrogen Partnership African Green Hydrogen Alliance	29 including 17 NDEs
Asia Pacific	Green Hydrogen Technology in Energy and Sustainable Mobility Sectors	Green Energy Institute National Renewable Energy Laboratory (NREL)	31 including 15 NDEs
Latin America and the Caribbean	Green Hydrogen Technology in Energy Systems and	Economic Commission for Latin	41 including 9 NDEs

	the Water-Food-Energy Nexus	America and the Caribbean (ECLAC); The Sustainability and Climate Change Agency of Chile (ASCC), Various Ministries and institutions from Chile, Hydrogen Associations from Colombia, Chile, and Mexico, Walmart, IRENA, GIZ, and the Interamerican Development Bank.	

Global capacity building programme on developing endogenous capacity of climate technology through collaborative RD&D

In collaboration with the Korean Ministry of Science and ICT (MSIT), the CTCN developed a collaborative RD&D scheme, which entails exchanges among institutions from the global South to foster climate technology innovation through partnerships.

A total of eight matchmakings for South-South collaborative RD&D partnerships were facilitated. Activities focused on identifying research institutions in NDE countries to match with partners from the global South and North. As a result, the CTCN received four requests for support in collaborative RD&D, and twelve discussions are under way exploring opportunities for establishing twinning arrangements.

Furthermore, the CTCN hosted a webinar series introducing regional and sectoral collaborative RD&D opportunities, focusing on the five system transformation areas.

Table 2. RD&D Webinar Series

Thematic Focus	Region	Partners
Session 1: WEF Nexus	Asia and the Pacific and Africa	FAO, STEPI, and One World
Session 2: Nature-based solutions for Buildings and Resilient Infrastructures	Latin America & Carribean	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

Launch of the Artificial Intelligence for Climate Action initiative

In 2023, the UNFCCC's Technology Mechanism launched at SB 59[11] an initiative on Artificial Intelligence (AI) for Climate Action (#AI4ClimateAction). Under this initiative, the CTCN will continue to support NDEs capacity to understand the complexity and implications of AI, and seize the opportunities offered by AI in advancing digitalization and scaling up transformative climate solutions in developing countries.

To assess the possibilities and outline future work and activities, the CTCN and TEC hosted dialogues during Regional Climate Weeks and organized a high-level event on Artificial Intelligence for Climate Action at #COP28 in Dubai.[12]

Focusing on least developed countries (LDCs) and small island developing states (SIDS), the CTCN and the Technology Executive Committee (TEC) will jointly:

a) Facilitate policy discussions, awareness raising, and knowledge exchange among UNFCCC national focal points, NDEs, and other stakeholders on developing and deploying AI-powered climate solutions.
b) Support capacity-building efforts in developing countries to utilize emerging digital technologies and develop locally led solutions using AI.
c) Establish regional networks facilitated by the CTCN to support AI for climate action.

Gender Just Climate Solutions

As part of its collaboration with the Women and Gender Constituency (WCG), the CTCN supported the 2023 Gender Just Climate Solutions Award, serving on the jury to select new winners for the 2023 edition of the award.at COP28[13], disseminating information about the award through its communication channels[14] and providing access to a year-long mentoring program for winners of the award.

11

12 https://unfccc.int/ttclear/events/2023/2023_event10
13 https://www.ctc-n.org/sites/default/files/resources/GJCS-brochure_COP28_EN_WEBs.pdf
14https://www.ctc-n.org/news/empowering-women-through-sustainable-housing-dinajpur-bangladesh?fbclid=IwAR03k9RU2H3vQJzruZGhBWHd5QXjxRCvloq1ZH56YwI0BL8sZeFrExwPMWE_aem_Aeqdihkz_60GAW87SnxbJkHG7yPtTxdo_rf_de1r20NVSuJHXfb4V9UiRHM0ieDfvQjaaiHWavt8q4pFTfwWSmfT

Awardees in the Technical Solutions Category: AzuKo and Nirapod Bangladesh Songstha

Solution: Build for Safety: women contributing to climate-resilient housing in Bangladesh
Recipients: Jo Ashbridge (AzuKo) and Apu Roy (Nirapod Bangladesh Songstha)
Country: Bangladesh

Awardee in the Non-Technical Solutions Category: Paran Women Group

Solution: Bolstering Indigenous women's knowledge and resilience to climate change impacts
Recipient: Naiyan Kiplagat (Paran Women Group)
Country: Kenya

Awardees in the Transformational Solutions Category: Baithak and DASTAK Foundation

Solution: Framework for gender-equitable climate disaster response
Awardees: Ayesha Amin (Baithak – Challenging Taboos) and Hira Amjad (DASTAK Foundation)
Country: Pakistan

National Digitalization Readiness Index

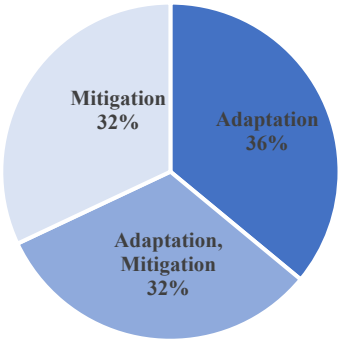
In 2023, CTCN started the National Digitalization Readiness Index (NDRI), a joint research partnership with George Washington University and the National Institute of Green Technology. The project aims to evaluate the potential of each developing country to transform its system in five identified areas by applying digital tools.

With this index, CTCN is strengthening the engagement of NDEs in technical assistance project ideation, and the implementation of digitalization as an enabler of system transformation. After pilot testing the Index, energy system transformation will be the first area where the Index will be implemented.

IV. Implementation

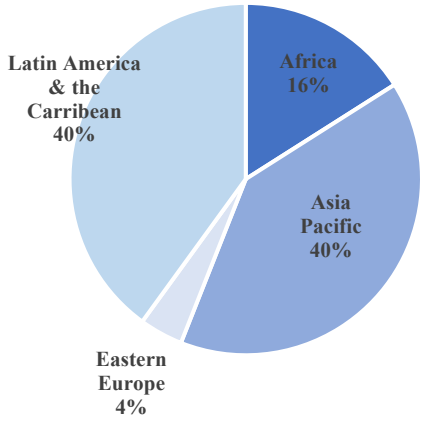
By the end of 2023, the CTCN had initiated 127 technical assistance projects in 2023 at different stages of implementation, comprising 53 projects in the design/new request stage, 10 in the bidding stage, 39 in the implementation stage, and 25 in the completion stage.

For reporting purposes and to prevent duplication, the AOP report will concentrate on the 25 technical assistance projects completed in 2023. A comprehensive list of these 25 projects is provided in Annex 1 of this document.

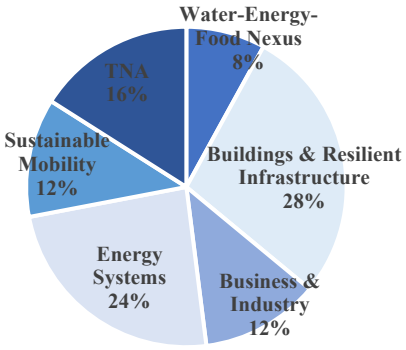


Among the 25 completed Technical Assistance projects, there is an emerging balance in the distribution of interventions between Mitigation and Adaptation, with a slight predominance of projects focusing on Adaptation.

While this representation of completed TAs in 2023 should not be viewed in isolation, but rather as part of the broader portfolio of the CTCN technical assistance, nevertheless, this trend signifies a growing interest and demand from countries for adaptation-related technical assistance or assistance that integrates both mitigation and adaptation efforts.



In terms of geographical representation, 40% of completed TAs in 2023 are from the LAC, and Asia-Pacific regions respectively. Africa accounts for 16% of completed TAs, followed by Eastern Europe with one TA completed in 2023.



When analyzed across the five system transformation areas, 28% of completed TAs in 2023 pertain to Buildings and Resilient Infrastructure, followed by Energy (24%), Business and Industry (12%), Sustainable Mobility (12%), and Water-Energy-Food Nexus (8%). TNAs represent 16% of completed TAs in 2023. It is important to note that some TAs may fall under more than one system transformation area.

The following section provides a summary of the main outputs and anticipated impacts of completed TAs in 2023, categorized based on the five system transformation areas.

A. Technical Assistance: Water-Energy-Food-Nexus

| Saint Kitts and Nevis|	**| Adaptation |**	**| Decision-making tools and/or information provision|**	**|Digitalization |**

Helping Saint Kitts and Nevis adapt to reduced rainfall:
Enhancing water supply system resilience by implementing Managed Aquifer Recharge (MAR) techniques and integrating drought risk modeling

Outputs:

- Design and implementation of a drought-forecasting system that combines data from Earth Observations satellite imagery, land surface model simulations, weather and climate forecasting, hydrological data, and hydrological modelling. The model outputs are analyzed and visualized on a map-based tool and monthly forecasts of water stress can be generated. Additionally, the system can function as an alert mechanism for emergency services, prompting the activation of contingency plans when necessary.
- Development of manuals for users and administrators

Expected impact and/or follow-up action:

- The Technical Assistance has strengthened the drought risk forecasting capabilities of SKN and the availability of information to cope with future water shortages.
- The drought forecasting model is now helping national officers from SKN to identify areas most susceptible to water supply variability and shortages, and therefore to take early action to manage these risks.
- Leveraging the outcomes of the technical assistance, CTCN network member HR Wallingford is developing a Water Information System for the islands and building on the Drought forecasting system, with funding from the Caribbean Public Health Agency (CARPHA).

Gender considerations:

- Female-headed households and youth represent the most vulnerable segment of the population during drought periods, and they are anticipated to derive significant benefits from improved water access and the implementation of sustainable water delivery systems within communities.

|Seychells|		Adaptation		Financing Facilitation		National Systems of Innovation	
Fast Technical Assistance to develop a pre-concept proposal to the Innovation Facility of the Adaptation Fund for a holistic watershed management approach			
Outputs: • A pre-concept proposal for the Adaptation Fund Innovation Facility for the detailed design and implementation of an innovative water retention structure in "La Drisse" depression, in the Mare-aux-Cochons watershed in Mahe. **Expected impact impact and/or follow-up action:** • Improved hydrological management of the Seychelles that address two significant water supply challenges: the necessity to transfer water from the West to the East for treatment and consumption, and the imperative to increase storage capacity across the islands. **Link to TNA:** • The 2018 Seychelles TAP emphasizes water security, particularly addressing the inadequate water supply on Mahe Island to meet demand.			

B. Technical Assistance: Buildings & Resilient Infrastructure

|Bangladesh|		Adaptation		Decision-making tools and/or information provision|	Digitalization|
Strengthening Bangladesh's capacity to understand and address climate change impacts on coastal geomorphology			
Outputs: • Earth Observation technologies have been customized and integrated into national institutions for informed decision-making. Technical support and training were provided to local institutions to apply state-of-the-art Earth Observation based approaches for synoptic monitoring of changes and dynamics within the coastal zone. • Training manual and step-by-step guide with methodological guidelines • New lines of communication established with the regional counterparts in Thailand working on similar issues • A delegation of Bangladesh policymakers has participated in a 3-day knowledge exchange trip to Thailand which included visits to the Hydro-Informatics Institute (HII) in Bangkok, a field trip, and a meeting with Thailand's National Designated Entity. **Expected impact impact and/or follow-up action:** • Capacity built to use earth observation to provide early warning of bank erosion in the coastal zone. When operationalised this will protect the livelihood of the inhabitants of the coastal zone of Bangladesh. **Link to TNA:** • Thailand's 2012 TNAprioritizes the water sector, specifically emphasizing infrastructure development and the management of tidal systems and related infrastructure.			

Bangladeshi and Thai water professionals exchange views on real-time monitoring of water levels and precipitation.

Movable flood gates being erected during pre-flood conditions and during flood situation.

|Belize|	**| Adaptation |**	**| Governance and Planning|**	**|National Systems of Innovation|**

Groundwater monitoring for mapping aquifers in Belize as a tool for climate change adaptation planning

Outputs:

- The first groundwater monitoring system in Northern Belize was developed to assess and control the impacts of groundwater abstraction and contaminant loads to Belize aquifers through monitoring aquifer response and quality trends.
- Capacity building and knowledge transfer was provided on groundwater management to ensure the correct implementation of the monitoring system.

Expected impact impact and/or follow-up action:

- The groundwater monitoring system will allow stakeholders to understand trends in groundwater quality and quantity, in the face of development pressures and climate change impacts and will improve their ability to plan in advance for managing water resources in the areas most at risk. This in turn will underpin the sustainable use and effective management of groundwater resources.
- Moreover, efforts are currently underway to expand the monitoring system to a national level. A concept note for scaling up has been developed as part of the Technical Assistance.

Link to TNA:

- The outcomes of the prioritization of adaptation technologies for the Water Sector, as documented in Belize's 2017 TNA comprise the technology of drought monitoring system specifically for Northern Belize, with a specific focus on groundwater resources.

Gender considerations:

- A gender analysis was conducted to integrate a gender perspective into the development of the groundwater monitoring system. This was prompted by the limited integration of gender mainstreaming within planning and institutional processes in the water sector in Belize.

In the media:

- Reference to the CTCN Technical Assistance made by H.E Carlos Fuller, premanent representative of Beliz to the UN, in statement during the UN Conference on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action "Water for Sustainable Development" in March 2023
- Announcement by the Belize National Climate Change Office of the launch of the Technical Assistance project in the national media

|Honduras|	**| Adaptation |**	**| Decision-making tools and/or information provision|**	**|Digitalization|**

Designing nature-based solutions with an ethnic and gender-equity approach, to increase the resilience of rural mountain communities in protected natural areas affected by extreme weather events in Honduras

Outputs:

- The technical assistance, implemented in conjunction with community resilience experts from the Government of Honduras (ICF), the UNESCO Chair in Sustainability, and the University of Aarhus and SDU, supported the implementation of strategies to develop nature-based solutions to increase the resilience of rural mountain communities in the areas affected by extreme weather events.
- The technical assistance supported the creation of a multi-stakeholder working group for co-governance among all participating actors (government, communities, and universities) for the development of an adaptation plan.
- A demonstration pilot of a participatory model of disaster prevention using nature-based solutions was conducted, codesigned with an indigenous community in Montaña de Celaque National Park.
- Multifunctional pilots were developed for: 1) risk management of torrential rains; 2) reduction of the risk of erosion and landslides; 3) water conservation and water management in drought episodes; 4) use of rainwater; 5) treatment of diffuse pollution by agriculture and livestock and conservation of drinking water; and 6) sustainable sanitation for communities.

Expected impact and/or follow-up action:

- The technical assistance will bolster community resilience and disaster risk reduction, enhance adaptive food security by improving existing production systems, and promote equitable and inclusive sustainable rural community development for climate adaptation.

Gender considerations:

- Two inclusive sustainable business pilots were developed for initiatives of women's and youth groups, based on the transformation of plastic waste from packaging and agricultural waste (bioeconomy).

|Panama|		Adaptation		Decision-making tools and/or information provision|	National Systems of Innovation|

Panama's first high resolution marine dynamics database to assess vulnerability and climate change impacts to sea level rise

Outputs:

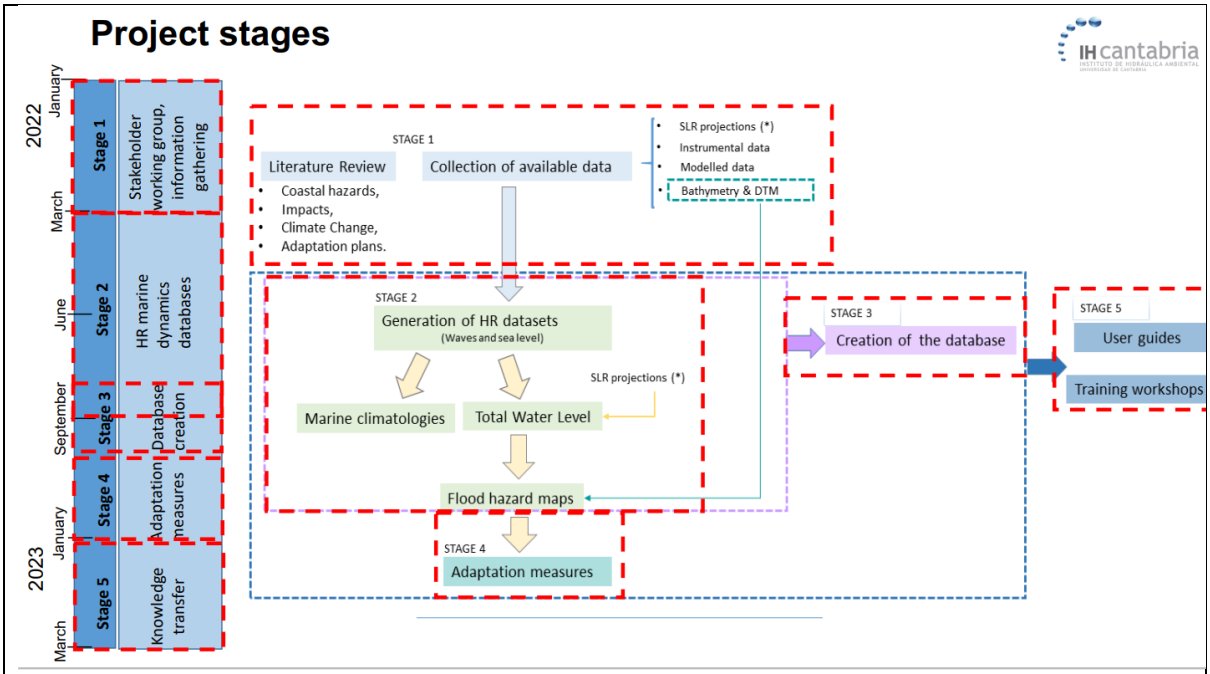
- High-resolution numerical databases on marine dynamics to evaluate the coastal risks.
- Methodological tools (procedural guides) for the generation of data from Marine dynamics and their use in coastal risk assessment
- Recommendations of adaptation measures for the coastal zone with nature-based solutions
- Technical capacities built for the officials of the MiAmbiente Climate Change Directorate
- High-impact graphic material for communities at risk created

Expected impact and/or follow-up action:

- There can be numerous potential applications of the generated database, including for risk analysis; adaptation measures design; coastal engineering (breakwater design, protection works, etc.); design and maintenance of port infrastructure; cnalysis and optimization of port operations; Operational systems: early warning, Panama Canal access, accidental spill analysis; Evaluation of ecosystem protection services; Ecosystem-based measures design.

Gender considerations:

- A gender analysis was carried out in the diagnosis of risks and vulnerabilities of women and gender mainstreaming in adaptation measures for the coastal zone.
- A training on the linkages between gender and change climate was conducted during the transfer and training workshops in the use and applications of the marine dynamics databases.



Please refer to the PowerPoint presentation of the Technical Assistance prepared for the 2023 LAC NDE forum.

|Peru|	**| Adaptation |**	**| Decision-making tools and/or information provision|**	**|National Systems of Innovation|**

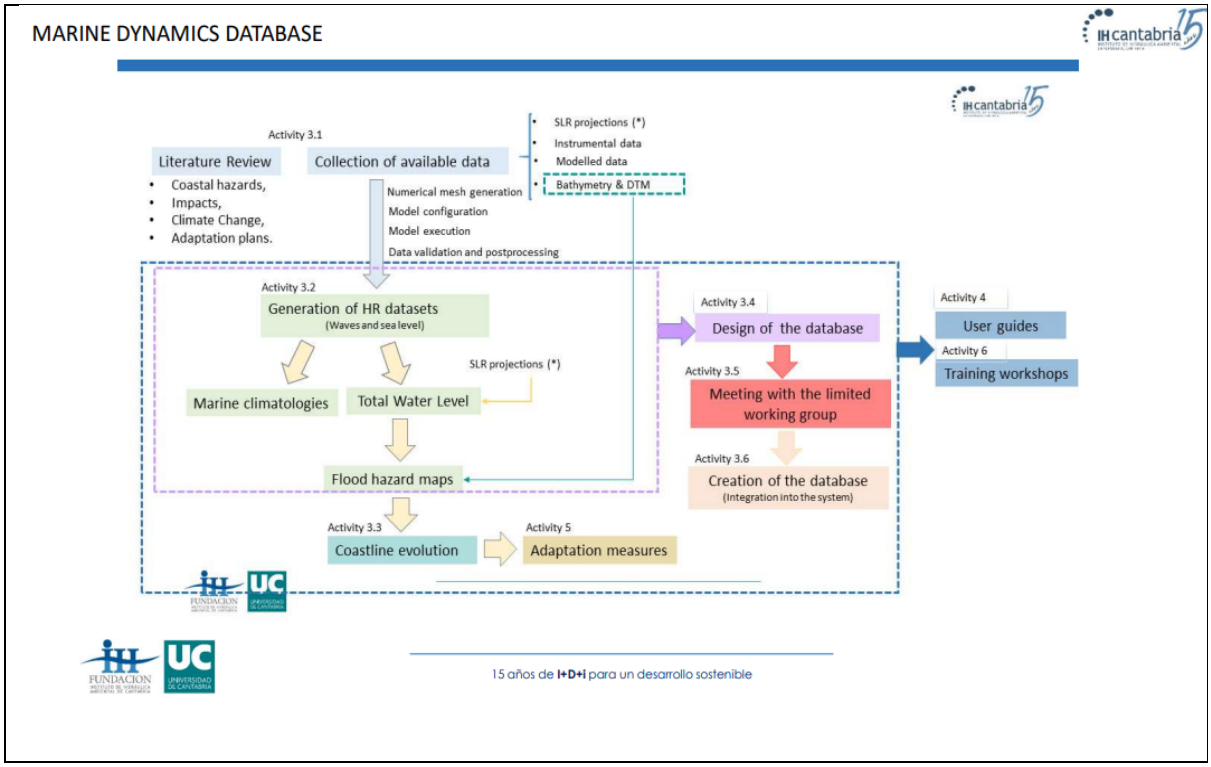
Peru's first monitoring and evaluation system prototype to monitor progress of adaptation interventions in the water, housing, and energy sectors

Outputs:

- Monitoring and evaluation system prototype to monitor progress of adaptation interventions in the water, housing, and energy sectors as well as the quantification of risk reduction, adaptive capacity and impacts on populations affected by climate change.
- The M&E framework for NDC implementation in Peru was updatated for Adaptation measures in the Water sector. With the addition of specific measures and responsibilities for the Ministry of Housing and Ministry of Energy, which for the first time participated in adaptation reporting. Though it is not categorised as a policy, it is a relevant progress for tracing progress in adaptation.

Expected impact and/or follow-up action:

- Understanding progress in NAP implementation is a prerequisite to knowing how well Perus in adapting to climate impacts and, hence, a key information source to adjust delivery as needed to better protect the population.
- The M&E system is also relevant for the ongoing update of Perus' Nationally Determined Contribution (NDC), whose adaptation section should be aligned with the NAP process and reflected by the M&E system.



| Togo |	| Adaptation, Mitigation |	| Governance and planning |	| National Systems of Innovation |

Promoting climate-smart municipalities in Togo for a better response to climate challenges.
(Co-funded by UNDP)

Outputs:

- Capacity-building sessions, including for technical staff and decision-makers at the commune level, on climate governance, climate finance, vulnerability assessment, and the development of Climate Action Plans
- Vulnerability assessments of 10 communes in Togo, resulting in a report per commune of its vulnerability
- 4 Communal Climate Action Plans which consists in models for the transformation of the communes into Climate Smart Communes integrating energy, mobility, waste, vegetation cover and agricultural transformation to improve the resilience of communities and ecosystems.

Expected impact and/or follow-up action:

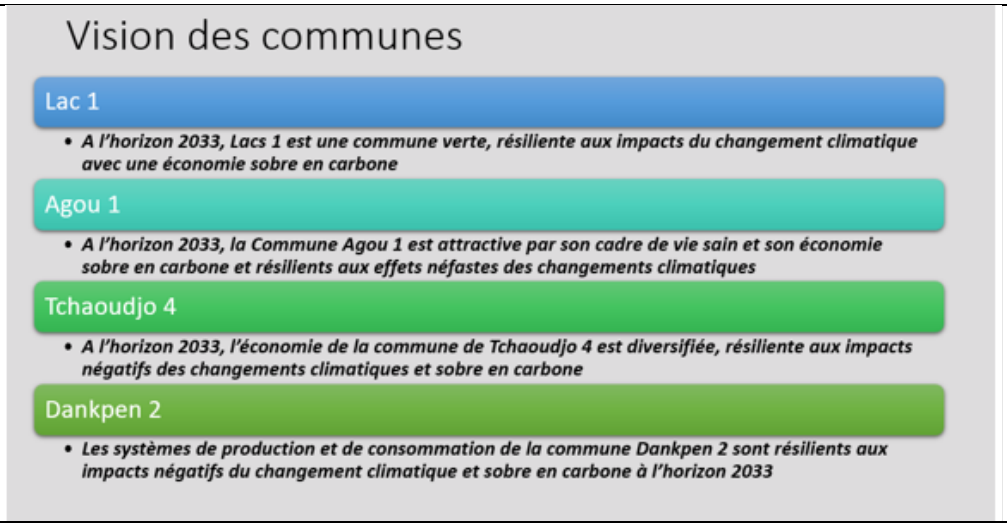
- The methodologies for vulnerability assessment and the development of Climate Action Plans are being utilized by the 6 municipalities that were not initially selected under the TA to create their own action plans.

Gender considerations:

- The TA included the development of mechanisms and tools to integrate women and young people into decision-making on energy and climate issues.

In the media:

- Find here a summary of the launch event, during which the Minister of Environment, Mr. Katari Foli-Bazi, officially launched the technical assistance in collaboration with UNDP and UNEP-CTCN.



| Vietnam |	**| Adaptation |**	**| Piloting and deployment of technologies in local conditions |**	**| National Systems of Innovation |**

Localization of water resources management technology to adapt to climate change in the Hong-Thai Binh River basin in Vietnam

Outputs:

- Identification of the most appropriate technologies to provide the missing science-based information on transboundary water resources needed to formulate a more comprehensive water resource management plan for the Hong-Thai Binh River basin, which is shared by China, Laos, and Vietnam.
- National experts were trained in innovative techniques for calculating transboundary flow.

Expected impact and/or follow-up action:

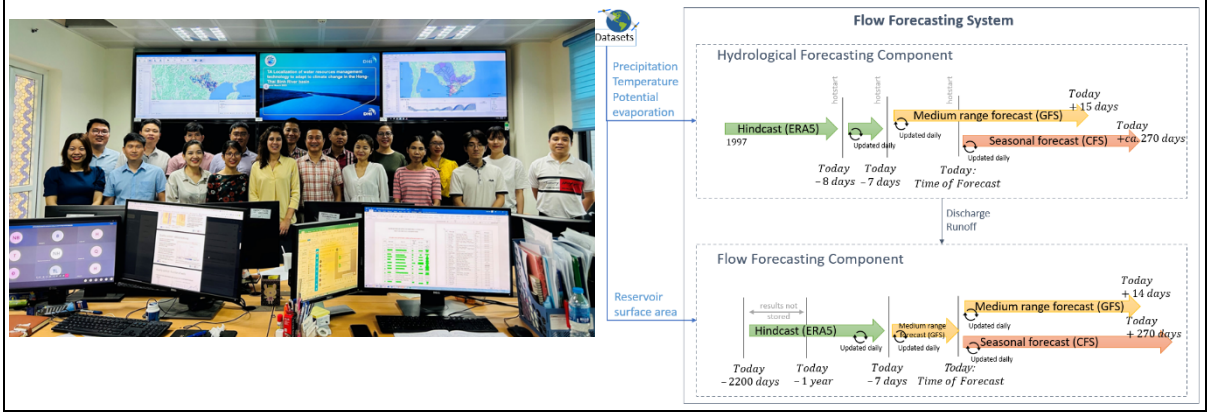
- Over 5 government experts are expected to be impacted by having access to state-of-the art data that they can apply in their WRM activities.
- Specifically, the flow forecasting system will allow for more precise estimation of water capacity and availability in the river basin during the dry season. Consequently, enhanced planning for water supply to communities and households residing in the river basin areas can be achieved.
- Furthermore, during the flood season, the improved border flow estimates can be utilized for monitoring and issuing warnings in the Hong-Thai Binh River basin.

Link to TNA:

- Vietnam's 2012 Technology Needs Assessment prioritizes the Integrated River Basin Management technology as a key component of the Water Resources Sector.

Gender considerations:

- The TA team had a Gender Expert to guide THE preparation of stakeholder interviews and every stakeholder engagement process, including the technical training. The Gender Expert participated in the training and carried out an analysis based on a survey conducted at the end.



C. Technical Assistance: Sustainable Mobility

|Bangladesh|	**| Mitigation |**	**| Governance and planning|**	**|Digitalization|**

Development of Framework for Real-Time Transport Information Systems for Public Transport in Greater Dhaka

Outputs:

- Development of Bus Information System architecture for Dhaka city: Technical and functional system details and other design considerations, including potential locations to implement a real-time monitoring system, for the Dhaka public transport buses. This included technical specificiationc for including potentially digital signs at stops displaying arriving times and other information (Bus Information System, BIS).
- A review of the bus reform and how to include technology in reform efforts.
- potential pilot projects for Dhaka

Expected impact and/or follow-up action:

- Upon completion of this TA, Bangladesh can focus on implementing public transportation service improvement projects that apply information and communication technology, modern transport planning standards, and modern administration.
- Since this TA will develop costing estimates, and potentially funding arrangements, Bangladesh departments will be well-prepared to develop budgets, estimates, and tender documents to get potential private sector bidders to undertake the actual installation and development of the BIS/BMS
- If implemented, the equipment described will decrease the amount of time that bus passengers need to spend planning and waiting for transport, thereby allowing them to spend more time on economic activities.

|Lao PDR|	**| Adaptation, Mitigation |**	**| Governance and planning|**	**|National Systems of Innovation|**

Technical Capacity Enhancement for Planning an Urban Public Transport System in Vientiane, Lao PDR
(Pro-bono TA – Republic of Korea)

Outputs:

- A pre-feasibility study of a specific smart technology - Demand Responsive Technology – was carried out to seek to optimize their routing and minimize the travel time and waiting time for passengers.
- Acapacity building program with Lao PDR government officials to introduce them to advanced public transport technologies and planning processes in Korea was conducted.

Expected Impact impact and/or follow-up action:

- A proposal for feasibility study and pilot submitted to Korea's KOTRA agency.
- Lao PDR DOT to draft changes to legislation, based on recommendations from the TA.

Capacity Building/Field Trip: I-MOD DRT system in Geomdan

Capacity Building/Field Trip: Gangseo-gu transport garage and EV bus charging station

|Papua New Guinea|	**| Mitigation |**	**| Feasibility of technology options|**	**|National Systems of Innovation|**

Developing a national policy for deploying and scaling up E-mobility and supporting sustainable infrastructure in Papua New Guinea

Outputs:

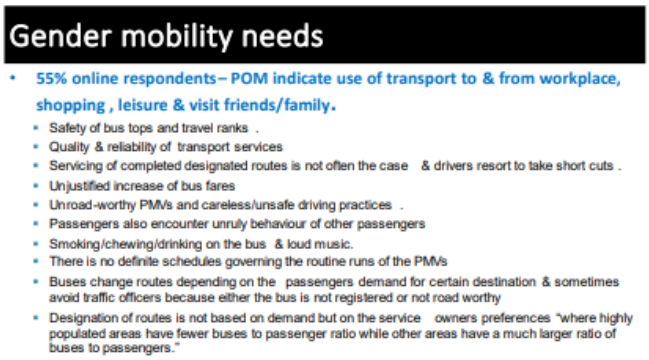
- Assessment of the potential for e-mobility, including risks and barriers to e-mobility investments and e-mobility policy and finance instruments.
- Draft of a National Electric vehicle (EV) Policy and implementation roadmap.
- Training sessions and knowledge exchanges to inform and raise awareness among stakeholders about e-mobility aspects that were entirely new to them, including on • identifying Barrier to E-mobility; frameworks for GHG monitoring; understanding E-bus technology – Feasibility study and gender mainstreaming.
- Green Climate Fund (GCF) concept note.

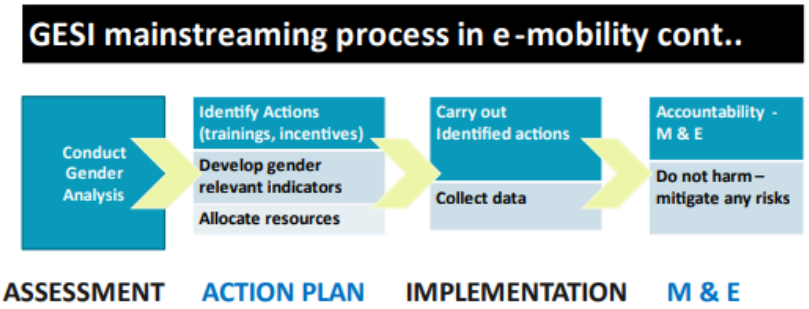
Expected impact and/or follow-up action:

- The deliverables from this project, as well as the experiences implementing it, help create an agreement among key public and private stakeholders about new, more concrete, and ambitious climate commitments.
- The Ministry of Transport, through the Department of Transport and Implementation, will endorse the EV policy.
- The Global Green Growth Institute assisted in developing a GCF readiness proposal for the preparation of an e-mobility policy. The Department of Transport implements two large-scale projects. One is funded by the Asian Development Bank (ADB) and is to create a Sustainable Urban Mobility Plan (SUMP), and the other is in partnership with a Swiss e-mobility company to introduce e-buses.
- Significant impact in bridging the awareness gap considering the limited understanding of e-mobility in PNG

Gender considerations:

- Gender mainstreaming training was conducted addressing some of the issues faced by women in PNG and especially related to accessing transport services.





D. Technical Assistance: Energy Systems

|Bahamas|	| Mitigation |	| Recommendations for law, policy, and regulations |	|Digitalization|
GREEN CLIMATE FUND	Countrywide Grid Stability Study in the Bahamas		

Outputs:

- Study to provide a better understanding of the achievable levels of renewable energy integration.
- Developed acomprehensive methodology for the grid stability assessment as well as capacity to conduct these assessments.

Expected impact and/or follow-up action:

- The TA project was designed to enable the environment to transition the Bahamas electrical grid systems towards the 30% introduction of renewable energy by 2030. It lays the foundation upon which the country's electric grid can develop consistently and operate sustainably in the future. The software developed in this TA has the potential to increase the efficiency by up to 7% of the power system, meaning reduction in 7% of the total GHI emission of the energy sector in Bahamas.
- The models themselves have been transferred to the utility together with training to ensure that capacity and expertise are built to continue to utilize the models in planning and

operations to accommodate a sustainable growth of reliable RE sources; and ensure that the capacity will remain within the Bahamas.
- It is anticipated that the data will be used as a baseline for infrastructure construction and tourism management.

|Dominica|	| Adaptation; Mitigation |	| Governance and planning |	|National Systems of Innovation|

Technical and economic feasibility of solar units and water storage on public buildings in Dominica

Outputs:
- Identification and analysis of stand-alone solar generation units for buildings present in Dominica.
- Identification and analysis of water capture/storage units for buildings present in Dominica.
- Financial feasibility analysis and modelling scenarios of electricity generation and water capture/storage, costs, and savings.
- Modelling scenarios of electricity generation and water capture/storage

Expected impact and/or follow-up action:
- This project will ultimately position the Dominica Government to subsequently implement the solar and water storage recommendations and template design installations in a subsequent tender to Contractors to build these storage systems

|South Africa|	| Mitigation |	| Feasibility of technology options|	|Digitalization|

Capacity Development for the Deployment of Demand Response (DR) in South Africa to Mitigate against Carbon Emissions and Electricity Supply Shortages [15]

Outputs:
- Assessment of the potential benefits of demand-side management measures that could be provided by the commercial and residential load sectors.
- Quantification of the value of residential and commercial DSM to alleviate the energy crisis.
- Provided demand reductions in addition to help provide alleviation to capacity shortages from demand side flexibility.
- Training and capacity building at CSIR and ESKOM

Expected impact and/or follow-up action:
- The potential for DSM programmes for Small and medium commercial customers and domestic customers is established when DSM programmes were only available for large industrial customers.
- The proposed DR scheme can reduce long consecutive load shedding if implemented and result in significant economic gains as load shedding impacts increase with duration. Current load shedding practices has been estimated to cost South Africa over $1.6 trillion rand in lost economic activity.

|Timor Leste|	| Mitigation |	| Financing Facilitation|	|National Systems of Innovation|

[15] See TA presentation from the 2023 NDE Forum in Africa here: https://www.ctc-n.org/sites/default/files/ACW23_Day1_Energy_Systems_NREL_Demand_side_management.pdf

GREEN CLIMATE FUND

Capacity building in Timor-Leste's renewable energy sector

Outputs:

- In a five-day training-of-trainers course, CTCN engaged with about 20 young people to build their knowledge and capacities in installing and maintaining solar PVs. The trainers – energy specialists from training centres, utility companies and students – in turn became a source of knowledge and know-how for their communities and villages, creating a far-reaching spread in business and livelihoods.

Expected impact and/or follow-up action:

- Development of training course which is now being considered for accreditation and approval under the national training scheme.
- The TA produced a concept note outlining additional activities, projects, and infrastructure development plans. The proposed initiatives aim to enhance access to clean energy and livelihood opportunities, including improved facilities for irrigation, cooking, and access to clean drinking water.

Gender considerations:

- The TA also identified needs of women and marginalised communities and developed framework for their further inclusion in the process.

In the media:

- Coverage of the project launch event and interviews with representatives from CTCN, NDA, and EDTL featured on local television in Timor-Leste.
- Reporting of the event and interviews of TERI and CNEFP representative in local TV in Timor Leste on ToT program
- CTCN impact story

|Vanuatu|	**| Mitigation |**	**| Feasibility of technology options|**	**|National Systems of Innovation|**

Enhancing Vanuatu's market for energy efficient appliances

Vanuatu has introduced legislations on labelling and standards for appliances with the assistance of the Pacific Community (SPC) Pacific Appliance and Labelling Standards (PALS) Project (2012 – June 2019). The labelling and standards regulations were adopted in 2017 and have since been implemented and enforced. However, the impact of the programme on the nation has not been quantified, and the effectiveness has been undermined by a missing monitoring, evaluation, and enforcement plan, as well as missing financial schemes to incentivize the uptake in households.

Outputs:

- Comprehensive technical market and policy assessment to identify challenges and bottlenecks to the effectiveness of the MEPSL programme for higher efficiency refrigerators, freezers, air conditioners, and lighting products.
- Assessment and upgrade of the existing Vanuatu Electronic Single Window (VeSW) registration system and development of Monitoring Verification and Evaluation plan
- Developed a training curriculum on the enhancement of MV&E activities for the MEPSL programme.
- Development of financing mechanisms for incentivization towards the purchase of energy-efficient appliances

Expected impact and/or follow-up action:

- The technical assistance established the basis for a series of activities that will lead to efficient and impactful standards and labelling programme for appliances.

Delivery of Training Program

Project Team Deliver a Training Session 1 on MV&E to DoE Officers, held on November 9, 2022, at the Department of Energy, Port Vila, Vanuatu

Project Team Discussed with Custom Official on Inspection of Imported MEPS-Regulated Goods

Project Team Observed Physical Inspection of Imported MEPS-Regulated Goods with the Customs Department Officers

Training Session 2 – DoE and Customs Officials, held on November 10, 2022, at the Department of Energy, Port Vila, Vanuatu

Mr. Tony, Controller Enforcement Mgr, Customs and Inland Revenue Dept, Sharing Current Practices on Inspection Procedures and Import Application Processing of Regulated Products under MEPSL Programme

Project Team with DoE Officials Inspected the Imported Used Household Refrigerator

|Vietnam|	**| Mitigation |**	**| Piloting and deployment of technologies in local conditions |**	**|National Systems of Innovation|**

Feasibility study of "waste to energy" (Livestock Manure to Biogas and Organic fertiliser) for rural communities in Vietnam using anaerobi digestion technology
(Pro-bono TA – Republic of Korea)

Outputs:

- Pre-feasibility study on the biogas generation plant
- Identification of institutional incentives to promote the adoption of the proposed technology.
- Site selecton for the establishment of a biogas generation pilot complex
- Enhance stakeholder awareness and capacity in utilizing organic fertilizer derived from livestock production waste for agricultural purposes

Expected impact and/or follow-up action:

- It is expected that by establishing an incentive system and establishing a policy basis for introducing a government-led biogas plant, it is possible to establish a profitable environment by utilizing heat, electricity, and organic compost, which are by-products of the biogas plant.
- According to the pilot project, 100 tons of livestock manure are treated daily through a biogas plant, producing 3.1 MW/day of electricity, 95 m3 /day of liquid fertilizer, and 5 m3 /day of organic fertilizer. The power, liquid fertilizer and organic fertilizer produced are expected to be sold to nearby farms and used as clean resources. Improve settlement environment, hygiene of the community.

03 Photos of the TA project (Kick-off meeting & Field Study)



E. Technical Assistance: Business & Industry

|Costa Rica|	| Adaptation, Mitigation |	| Sectoral roadmaps and strategies|	|National Systems of Innovation|
Supporting the transition to a circular economy in Costa Rica[16] The technical assistance (TA) builds upon an initial TA conducted in 2019, aimed at assisting municipalities and other decentralized administrations in integrating circular economy principles into their budgetary planning processes. As a result of this effort, a step-by-step guide has been published to help municipalities implement circular economy approaches in their planning and budgeting activities. **Outputs:** • Development of the National Circular Economy Strategy, starting with the establishment of the Intersectoral Technical Committee on Circular Economy • Publication of the National Circular Economy Strategy **Expected impact and/or follow-up action:** • Both the Circular Economy Fiscal Policy and Law proposals are under public consultation. • A project is in design to generate an index of circularity potential at the local government and municipality level.			

|Mexico|	| Mitigation |	| Governance and planning |	|National Systems of Innovation|

[16] The presentation on this TA made during the LAC NDE forum can be found here: https://www.ctc-n.org/sites/default/files/Session%208_Presentaci%C3%B3n%20de%20la%20Estrategia%20Nacional%20de%20Econom%C3%ADa%20Circular.pdf

Analysis of the current situation of the construction and demolition sector in respect of the Circular Economy in Mexico City
Outputs: • Analysis of the current situation of the construction and demolition sector from a circular economy perspective. • Proposed business model based on the analysis of the political, regulatory, and incentive environment. • Prototype for a platform for the exchange of materials derived from construction and demolition for the transition towards the circular economy in Mexico City. The platform's prototype was trialed in a pilot and manuals for its users and administrators were developed. **Expected impact and/or follow-up action:** • During the implementation of the TA, on April 3, 2023, the local parliament enacted a new law on solid waste management, which includes stringent directives for the construction and demolition sector. This law also mandates the development of a tracking platform to monitor waste originating from this sector. • The marketplace-type platform is expected to serve as a pilot project for application at the national level.

|Mongolia|	**| Adaptation |**	**| Feasibility of technology options|**	**|National Systems of Innovation|**

Enhancing climate resilience and economic sustainability of livestock farming in a rural community of Mongolia
Outputs: • Mitigation solutions, including grassland management, soil carbon and carbon stock measurement, monitoring and verification, and improvement of agri-food processes. • Adaptation solutions, such as terrestrial ecosystem management and biodiversity management systems to increase crop resilience and productivity, and livestock management. • Feasibility assessment for a meat processing plant, including the financial, economic, and legal guidance for sustainable production to support herding businesses and communities, and small- and medium-sized farms. • Piloting of solutions in the Bayantümen Soum herding community, paving the way to possible scale up among other Mongolian herding communities. **Expected impact and/or follow-up action:** • A total of 113,000 tCO2e is expected to be reduced annually in the Bayantümen Soum if the identified livestock population measures are taken. These measures include restructuring cattle herds and sheep flocks, and preventing further increases in the populations of other livestock types. • In addition, If the meat processing plant is built, it will benefit 4,000 consumers. • Findings from CTCN technical assistance, supported the development of a concept note for Enhancing Community Climate Options for Adaptation and Resilience (ECCO-FARM) in Mongolia, submitted to Global Affairs Canada (GAC) to help secure climate finance. In 2023, the full proposal was submitted and in early 2024 the proposal was signed by GAC Deputy Minister, securing approximately USD 7.5 million for further climate action response to build resiliency of livestock farming. **Gender considerations:**

- A comprehensive gender assessment was conducted to leverage women's roles in mitigating and adapting to climate risks, protecting natural resources, and safeguarding livelihoods. The assessment included the potential impact on women's employment and income, and resilience to climate disasters.

F. Technical Assistance: Technology Needs Assessments

|Botswana|	**| Mitigation, Adaptation |**	**| Technology identification and prioritisation |**	**|National Systems of Innovation|**

GREEN CLIMATE FUND

Updating technology needs assessment and development of technology roadmaps for prioritized technologies

Botswana conducted its first TNA in 2004.

Outputs of the updated TNA:

Technology Prioritization

Water Sector:	**Agriculture Sector:**
• Greywater harvesting at household and institutional levels. • Reducing Non-Revenue Water • "People to the Water" Policy • Public Awareness Campaigns for Water Conservation	• Integrated nutrient management (INM) with emphasis on soil fertility testing for sustainable integrated nutrient management and crop yields. • Livestock selective breeding and species diversification, with emphasis on breeding and promotion of drought-tolerant livestock • Crop diversification and new varieties with emphasis on promotion of drought-tolerant crops (e.g., sorghum)

Energy sector:		
Renewable Energy: • Solar Minigrids • Grid connected SPV/CSP • Solar Home Systems and Rooftop solar	Energy Efficiency: • Building Energy Management System • Efficient Lighting LEDS and Efficient Appliances	Industry Energy: • Solar Heating and Cooling • Power-Factor Correction

|Georgia|	**| Mitigation, Adaptation |**	**| Technology identification and prioritisation |**	**|National Systems of Innovation|**

GREEN CLIMATE FUND

Updating of Georgia's technology needs assessment (TNA) through development of technology road maps for prioritized technologies

Outputs of the updated TNA:

- Technology Prioritization

Expected impact and/or follow-up action:

- Four GCF Concept Notes were developed as an output of the TA building n the technology action plans:
  1. Georgia E-mobility (127,199,500 USD)
  2. National Programme on Energy Efficient Refurbishment of Public Buildings in Georgia (102,000,000 USD)
  3. Green Hub - Waste to Energy (Biofuel) (10,000,000 USD)
  4. Private Sector Support in Sustainable Management of Landscapes and Development of Green Agrotourism (50,000,000 USD)

|Kyrgyzstan|	**| Mitigation, Adaptation |**	**| Technology identification and prioritisation |**	**|National Systems of Innovation|**

The Technology Needs Assessment (TNA) and Technology Action Plans (TAPs) for the Kyrgyz Republic

Outputs of the updated TNA:

- Technology Prioritization

Mitigation	
Waste Sector: • Mechanical and biological treatment of TO • Use of solud organic waste for biogas plants • Use of wastewater organic matter for biogas plants	Energy Sector: • Use of natural gas for heating instead of coal • Thermal insulation of existing public buildings • Energy efficient stoves for the residential sector
Adaptation	
Agriculture sector: • Sustainable Pasture Management (SPM) • Organic Farming • Drip irrigation	Water resource sector: • Energy- and resource-saving drinking water supply systems form the surface water sources using local materials. • Energy efficient pumps for pumping stations in the Kyrgyz Republic • Subsurface irrigation on the background of closed drainage by sub irrigation method

Kyrgyz delegation tours Danish climate technologies

A Kyrgyz Republic delegation visited the UNEP Copenhagen Climate Centre from June 19-21, 2023, to learn about climate technologies relevant to their TNA They toured waste-to-energy and industrial facilities, learned about clean technologies at a wastewater treatment plant, and received presentations on sustainable agriculture. Discussions with Danish officials focused on political initiatives for adopting climate technologies in water and waste management.

Expected impact and/ or follow-up action:

- Three GCF concept notes were developed as part of the TA focusing on:
  1. Organic agriculture through the transfer of innovative technologies for adaptation
  2. Reducing coal consumption through energy efficiency and energy conservation in public buildings
  3. Mechanical-biological treatment and biogas production from food waste

|Paraguay|	**| Mitigation, Adaptation |**	**| Technology identification and prioritisation |**	**|National Systems of Innovation|**

GREEN CLIMATE FUND

Technical guidance and support to conduct a technology needs assessment and a technology action plan for Paraguay

This marked Paraguay's first TNA.

Outputs of the updated TNA:

- Technology Prioritization:

Agricultural and Forestry Production Sector and Food Safety • Good Agricultural Practices with a tendency to Climate-Smart Agriculture • Sustainable Livestock Management	**Water Resources Sector** • Integrated Water Resources Management
Sector Ecosystems, Biodiversity and LULUCF • REDD+ platform for monitoring, certification, and payment for results • Integrated Monitoring and Evaluation (M&E), Reporting and Verification (MRV) System for Climate and the environment	**Energy & Transport Sector** • Side channel construction technologies to facilitate navigation on waterways. • Development and/or transfer of technologies for the production and use of green hydrogen • Design and management of electrical micro-grids with hybrid systems in

	isolated communities (use of photovoltaic panels)

Industrial Processes and Product Use sector

- Increasing the amount of recycled material as raw material in glass production
- Implementation of demonstration projects using low-GWP substances to replace HFC gases

Expected Impact:

- Two GCF concept notes were developed for leveraging finance for climate technology deployment. One of the GCF concept notes addressed an integrated water management system, worth USD 4 million USD, that has the potential to:
  - **i)** reverse ecosystem degradation in prioritized river-basins and strengthen resilience of the ecosystems to climate change, through anticipatory actions for droughts, floods, and other climate risks.
  - **ii)** strengthen local livelihoods with more equally distributed water resources to provide steady income to the local communities.
  - **iii)** increase access to safe drinking water in both urban and rural areas, with about 4,987,500 people (almost 75 per cent of the population) benefiting from the integrated water resource management programme.

V. Enabling Environment & Capacity Building

Global capacity building and knowledge sharing		
Activity	Objective(s)	Quantitative/Qualitative outcome(s)
Capacity building programme on Green Hydrogen 23-26 May 2023 – Busan, South Korea 4-5 October 2023 – Cotonou, Benin 7-8 November 2023 - Vitacura, Santiago de Chile	The main objective of the capacity building programme was to enhance the knowledge of NDEs in the field of green hydrogen technology and the necessary supportive infrastructure. The key objectives were to: 1. Understand past, current, and the future of Hydrogen Technology in across different system transformation areas. 2. Peer-to-peer learning of existing national hydrogen policy plans. 3. Matchmaking with local technology providers to incorporate economy and social shift strategies for sustainability.	A total of 101 participants joined the three regional workshops, including 41 NDEs.
NDE regional forums – co-hosted with the TEC. 5-7 September 2023 – Nairobi, Kenya 13-15 November 2023 – Johor, Malaysia 24 – 27 October 2023 – Panama City, Panama	The CTCN, in collaboration with TEC, convened NDE for regional NDE Forums on System Transformation through Climate Technology Transfer. These events were held during the UNFCCC Climate Weeks and sought to facilitate a series of knowledge-sharing activities with the following objectives: 1. Showcase progress achieved in the region. 2. Highlight available technologies and resources for advancing climate system transformation. 3. Promote South-South and North-South collaboration in research, development, and investments that benefit both national and global climate change mitigation efforts	A total of 127 participants joined the three regional workshops, including 29 NDEs.
Inclusivity and accessibility to climate technologies for all – co-hosted with UNITAR - Jeju International Training Center 7 – 8 September 2023 – online	The aim of this two-day online training was to enhance access to climate technologies for developing countries by: • Introducing the Technology Mechanism of the Paris Agreement • Sharing innovative policy tools and social marketing techniques aimed at catalysing behavioural change. The workshop was tailored for government officials, private sector representatives, and members of civil society engaged in decision-making, development, deployment, and financing of climate technologies.	334 participants gained new insights and tools to address climate challenges and were awarded with a certificate upon completion.

Embracing SF6-Free Technologies: Paving the Way to Net-Zero Energy Systems 5-7 July, 2023 – Berlin, Germany	Three-day learning exchange on Technologies for Decarbonization of Electrical Transmission and Distribution Grids through F-gas Regulations and Policies. The workshop aimed to bridge the knowledge divide and empower stakeholders to make informed decisions regarding their complete energy system value chain.	40 participants, including stakeholders from energy ministries or utilities from 11 developing countries including Chile, Mexico, Ghana, Kenya, Uganda, Egypt, Lebanon, Thailand, Timor Leste, Vietnam, and Senegal
Developing endogenous capacity of climate technology through collaborative RD&D Online webinars: Session 1 – 24 July Session 2 – 28 August Session 3 – 11 Sept. Session 4 – 16 Oct. Session 5 – 21 Nov. **2023**	Webinar series covering the CTCN's five system transformation areas and work in different regions. The main objective was to share knowledge on ongoing collaborative RD&D activities and funding programmes, and facilitate the exchange of knowledge, lessons learned, and best practices.	161 participants joined the webinar series.
Deep Dive Clinic for NDEs and NDAs - held during the GCF Structured dialogue for Asia Pacific 8 August 2023 – Songdo, South Korea	Held during the GCF Regional Programming Dialogue with Asia and the Pacific and co-hosted by the CTCN and GCF the workshop aimed to open a platform for discussion between focal points of CTCN and the GCF to increase their national coherence on climate technology and action plans. The joint session aimed to: • Identify ways to enhance information-sharing and streamline coordination processes among NDEs, NDAs, and operational focal points of financing agencies, emphasizing the importance of continued coordination among national focal points. • Test approaches and map ways to strengthen the engagement of stakeholders; and • Identify means for enhancing cooperation between NDEs and NDAs.	20 Participants including 5 NDEs
Harnessing Technology in the Circular Economy	The Knowledge Brief titled "Harnessing Technology in the Circular Economy for Climate Action in Africa" showcases the opportunities in	Over 130 participants

for Climate Action in Africa 28 February 2023 - Online webinar	Africa to harness circular economy solutions to address climate change while highlighting key lessons and insights. The Brief was launched during a webinar where public institutions, organisations, entrepreneurs, and stakeholders shared the challenges and opportunities encountered in implementing circular economy in their business, communities, and organisations.	
SB 58 and COP 28 Side Events	The CTCN hosted and co-hosted several side events during SB 58 and COP 28 including: • Launch of the Artificial Intelligence for Climate Action (10 June, with the TEC) • High level panel: Advancing the Phasing out of SF6 (3 Dec, NDC Partnership Pavillion) • Launch of the Green Technology Book (6 Dec, with WIPO) • Digital readiness of developing countries: how it can accelerate climate action (6 Dec, Global Innovation Hub) • Fostering innovation through collaborative climate technology RD&D.(8 Dec, with the TEC) • COP 28 Presidency Event: Uniting for Climate Actions: Calling for International Technology and Innovation (8 Dec, with the TEC) • COP 28 High level event: advancing international cooperation on technology development and transfer to developing countries (8 Dec, with the TEC) • COP 28 High level event: Artificial Intelligence for Climate Action (9 Dec, with the TEC)	
UNFCCC Regional Climate Weeks Side Events	In addition to the regional NDE forums held during the regional climate weeks, the CTCN organized several side events, including: • Developing & Strengthening National Systems of Innovations (NSI) to drive climate technology (Aisa Climate Week, co-hosted with the TEC, 16th November) • Exploring the use of artificial intelligence for climate action in asia-pacific (Aisa Climate Week, co-hosted with the TEC, 16th November)	
CTCN newsletters and social media activity	During the reporting period, the CTCN launched: • 22 news releases • 363 social media posts • 12 newsletters	Over 12,000 newsletter subscribers 12 918 social media followers (Facebook, Twitter, LinkedIn)

Furthermore, the CTCN was invited to share knowledge on climate technologies at over 20 global conferences and partner events throughout 2023, including during the adaptation futures 2023 conference and COP 28.

New publications

Technology & NDCs: stimulating the uptake of technologies in support of ndc implementation:

In 2023, the TEC and CTCN updated their joint publication on Technology & NDCs to include the latest findings on technology needs, challenges, linkages between policy and implementation and with national adaptation plans. The publication also features 12 success stories that showcase the uptake of a broad spectrum of climate technologies in support of NDC implementation in different geographic regions and country contexts.

Furthermore, a Summary for Policymakers, was made available in Arabic, English, French and Spanish.

Harnessing Technology in the Circular Economy for Climate Action in Africa: Knowledge

This knowledge brief aims at highlighting the role of technology in supporting the circular economy (CE), and providing insight into technology-based solutions, including support for fostering the enabling environment that improves the uptake potential of circular technologies, practices, and policies. It features case studies from selected African countries emphasizing the role of technology in promoting CE through initiatives supported by the CTCN as well as a brief glimpse into the trajectories of four countries (Ghana, Kenya, Morocco, and South Africa) at different stages in the development of circular economies.

Green hydrogen technologies: compilation of national strategies, plans, and projects.

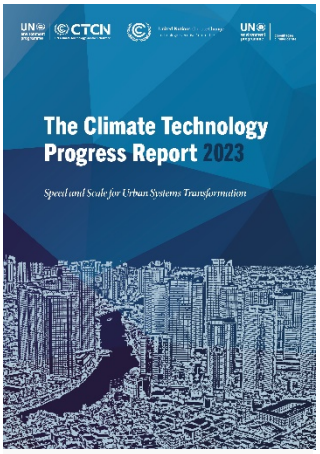
This compilation intends to distil what has been learned to date and equip countries with the knowledge and capacity to understand and assess available system transformation options, including opportunities and challenges, to reach net zero emission targ

2nd edition of the Green Technology Book

In collaboration with the World Intellectual Property Organization – WIPO and the Egyptian Academy of Scientific Research and Technology (ARST), the book presents a deep dive into the potential for mitigation through technology deployment in key sectors, all connected to the accessible and inclusive WIPO GREEN Database of Needs and Green Technologies. The database showcases a wider array of solutions and facilitates direct contact with technology proprietors. Additionally, the Green Technology

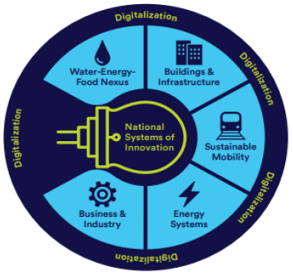
Book serves as an important matchmaking tool for fostering connections and partnerships in the field.

The Climate Technology Progress Report – 2023



UNEP-Copenhagen Climate Centre, in collaboration with the TEC and the CTCN launched the 2023 edition of the Climate Technology Progress Report. The focus of the 2023 edition of the report is on climate technologies for the urban and infrastructure system, zooming in on case studies from Asia, where strong synergies exist for mitigation, adaptation, and high co-benefits for socio-economic development.

CTCN Briefs – introducing the CTCN System Transformation Areas and Technology Enablers



Seven briefings were developed to support CTCN awareness raising and resource mobilization efforts in reaching out to Governments, the Private Sector, Finance, Foundations and Philanthropies who align with CTCN mission and vision, to act as the strategic bridge between the private sector and both public and private development finance.

Capacity building within technical assistance projects

In-country capacity building is also provided as part of CTCN TAs through hands-on expert advice, policy-oriented training, and peer-learning workshops. For example:

- In St. Kitts and Nevis, training was provided to system administrators on the use of the drought predication model. Project stakeholders reported that the "the assistance helped to fill the identified gaps by strengthening the expertise of national practitioners to use the drought forecasting software."
- In Mongolia, a series of workshops, study tours, and discussions were conducted throughout implementation to raise awareness, and build capacity of herder communities and local businesses, for the need to adopt new pasture and livestock management practices and understand business models that can increase resilience of their livelihoods.
- In Timore-Leste, the GCF readiness project provided technical and management training to government staff so that they can transfer knowledge and skills to the community regarding access to solar PV. The project also included capacity building for youth at the village level to increase their capacity to install and maintain solar PVs in their village.

Several TAs also include South-South and North-South learning exchange visits:

- In Laos, capacity building focused on transportation technologies and a south-south exchange with transport institutions in Korea allowed for exchange of experiences on the administration of public transport and BRT implementation.
- The two technical assistance projects implemented in Bangladesh also incorporated South-South learning visits: For the adaptation project focusing on climate change impacts on coastal geomorphology, a delegation of Bangladeshi policymakers participated in a 3-day knowledge exchange trip to Thailand. This visit included tours of the Hydro-Informatics Institute (HII) in Bangkok, field trips, and a meeting with Thailand's National Designated Entity. Regarding the mitigation project concerning real-time transport information systems,

the Dhaka Transport Coordination Authority (DTCA) was introduced to the history of bus reforms in Seoul dating back to the early 2000s. This experience served as inspiration and provided a framework for implementing similar reforms in Dhaka.

- As part of their TNA project, a Kyrgyz Republic delegation visited several Danish facilities during a learning visit in June 2023 to learn about climate technologies including waste-to-energy and industrial facilities.

VI. Collaboration and stakeholder engagement

National Designated Entities

In 2023, the CTCN continued to host its flagship regional NDE forums, organized in collaboration with the TEC:

Africa NDE Forum
5-7 September 2023 – Nairobi, Kenya

The Africa NDE Forum brought together 45 NDEs and other stakeholders. Forum participants were updated on the CTCN's new PoW, were invited to join a session with the TEC, discussed Artificial Intelligence (AI) and digital technology. Additionally, NDEs were introduced to other digital technologies such as distributed ledgers and blockchain and on transitioning to SF6-free energy grids.

Asia-Pacific NDE Forum
13-15 November 2023 – Johor, Malaysia

The NDE Forum was held over 3 days during the UNFCCC 2023 Asia-Pacific Climate Week, with Days 1-2 sessions open to public/observers/and other key stakeholders, followed by closed sessions with NDEs (Day 3). A total of 18 NDEs were present as well as representatives of CTCN Network and the CTCN Advisory Board. The Forum began with presentations of the: Overview of the work of the TEC, Outcomes of Negotiations and looking ahead to COP 28, Global Stocktake, and 2023 CTCN Activities in Asia and outlook for 2024-25 followed by presentations focusing on the 5 system transformation areas and the two key enablers at the core of CTCN's 3rd PoW.

In this NDE forum, CTCN supported the engagement of two Network members selected from the previous 'Co-creating Climate Solution (CCS)' event held in July 2022. The showcase of network members' technology solutions that have not been implemented through CTCN's service areas, allowed NDEs to consider application of market-proven technology solutions in their next TA project design.

LAC NDE Forum
24 – 27 October 2023 – Panama City, Panama

The LAC NDE Forum's programme provided an opportunity to engage with over 40 participants including 24 NDE, and 4 Network members on diverse topics including:

- Update on CTCN 2023 activities, and plans for 2024, and exhibit the latest development of CTCN services to developing countries in the region.
- Update on the TEC implementation plan for 2023-2024, its activities and deliverables and opportunities for engagement.
- Discussion on previous/potential technical assistant project ideas of each system transformation area of the PoW for Latin America and the Caribbean region.
- Reflection on opportunities to build South-South or North-South collaborative RD&D and investment that co-benefits national and global climate change action.

Linkages between CTCN technical assistance and the GCF and other financial mechanisms, such as the Adaptation Fund, the GEF and the NDC Partnership, relevant to climate technologies.

Furthermore, throughout 2023, several additional capacity-building programs were provided to NDEs, including:

- Thematic capacity-building programs targeting NDEs on the themes of SF6 and green hydrogen technologies.
- Deep dive clinics with GCF NDAs during the GCF Asia Pacific Structured Dialogues.
- Participation in workshops on co-creating solutions with network members to showcase technology and explore twinning arrangements for collaborative RD&D. Through the Bridge-building Workshop initiative, CTCN engaged NDEs to identify national counterparts for technology transfers. For example, at the World Climate Industry Expo, 15 NDEs explored matching collaborative RD&D opportunities between 8 government research institutes from the Republic of Korea and their national institutions.

CTCN Network Members

The CTCN welcomed 33 new Network members in 2023, of which 14 were from developing countries, bringing the total number of Network members to 868 members.

In 2023, the CTCN mobilised technical expertise of Network members in all services areas of the CTCN. For instance, in the regional climate weeks, Network members who implemented technical assistance were given opportunities to showcase their results and impacts and connect with the NDEs in the region. In terms of thematic capacity building, Network members with emerging technical solutions (Green hydrogen, SF6 etc) were invited to share their innovations with NDEs.

In 2023, to stimulate members' engagement, CTCN organized three global Networking events:

1. Co-creating Climate Solutions (CCS) event with Korean CTCN members, co-hosted with the Ministry of Science and ICT (MSIT), Republic of Korea
2. Technology talks at the World Climate Industry Expo 2023
3. Technical Assistant Project Ideation meetings with National Institution of Green Technology (NIGT).

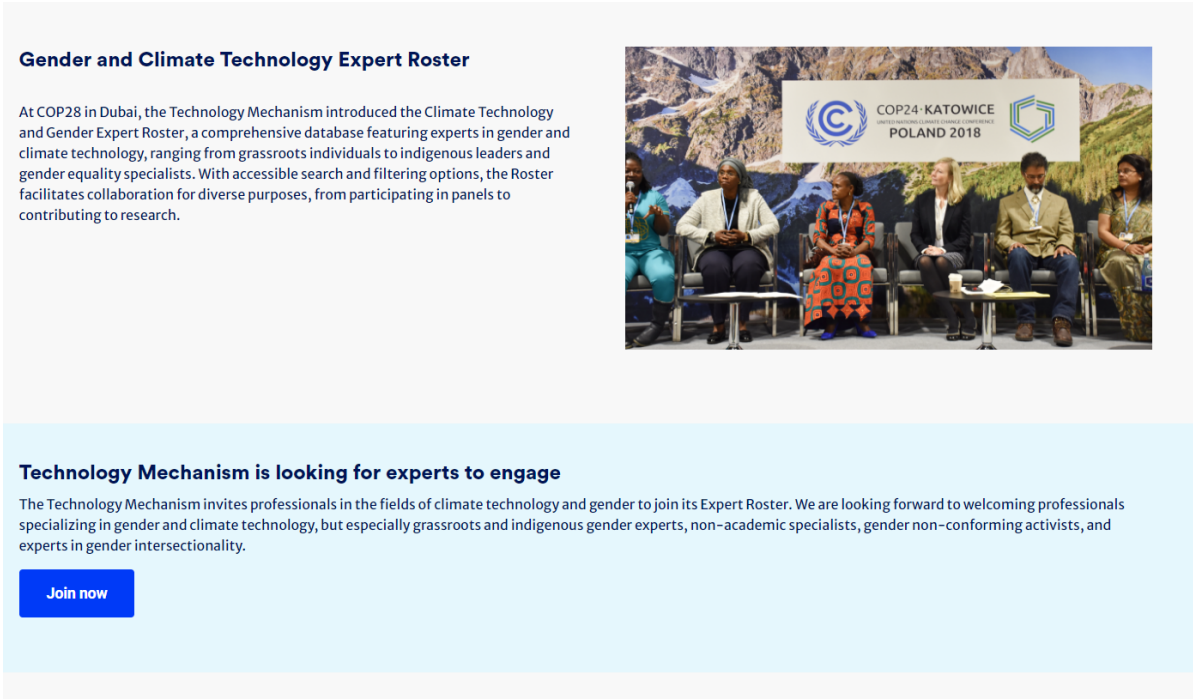
The CCS event led to the engagement of four CTCN members who volunteered to develop innovative technology solutions together with local experts who can mentor on the solutions' feasibility and impact potential. Four technical assistance concepts in agriculture/food systems and innovative technologies were showcased, and feedback from the finance expert panels led to connections with Climate Technology Network members, funders, and technical experts.

The CTCN continues to harness the power of partnerships with the private sector. This year, IBM, a global leader in AI and cloud computing, joined the Network to engage in workstreams aligned with the CTCN's strategic directions.

Engagement with other UNFCCC constituencies and actors

UNFCCC Women and Gender Constituency

In addition to collaborating on the 2023 edition of the Gender Just Climate Solutions Award, the CTCN, jointly with the TEC, partnered with the Women and Gender Constituency to develop the Technology Mechanism and Climate Technology Expert Roster. This global database, provided free of charge, features professionals, grassroots experts, and indigenous individuals with ancestral knowledge, all recognized as experts in gender equality and climate technology and available to participate in studies, events, and projects.



Furthermore, the CTCN sought expert advice from the constituency as it updated its Gender Policy and Action Plan, which was endorsed by the CTCN Advisory Board at its 22nd meeting in September 2023. A notable enhancement in the updated policy is the allocation of a minimum of 5 percent of the CTCN's technology assistance funds to gender mainstreaming activities.

Youth and academic institutions

Throughout 2023, the CTCN engaged in collaborative efforts with several academic institutions, including:

- A joint research partnership with George Washington University and the National Institute of Green Technology on the National Digitalization Readiness Index (see the Innovation section)
- Partnership with the University of Southern Denmark for the Urban Resilience Intensive Training 2023, during which the CTCN promoted the 9-day training and raised awareness among its networks.
- KOICA-INU Master's Degree Programme collaboration where the CTCN facilitated a global call for expressions of interest for junior trainees from developing countries to participate in a master's program on climate technology and governance. This initiative is supported by scholarships from KOICA. As part of this university program, the CTCN will also offer ongoing mentoring to the junior trainees on climate technology project design and development.

Following the successful collaboration between the CTCN, the UNFCCC youth constituency YOUNGO, and Network members Seedstars and SAEFEEM in conducting the Youth Climate Innovation Labs and Academies, an evaluation of the Labs was conducted to inform the CTCN's next youth program. A survey was distributed to participants to gather feedback. According to the review, the program effectively attracted many applicants from across the region and equipped youth with digital skills and innovation in the context of climate action. The innovative solutions generated were highly relevant to CTCN work and the needs of countries. However, the evaluation identified areas for improvement, such as the short duration of the academy program, which did not allow for sufficient initial support to transition from "Academy" to "Acceleration." Additionally, many participants faced challenges with fully participating in the Labs due to their virtual format.

Building on the success and lessons learned from the first edition, in 2024, the CTCN will launch a second edition of the program, which will support the ideation, incubation, and acceleration of teams and their ideas.

UNFCCC Paris Committee on Capacity-building (PCCB)

The CTCN collaborated with the PCCB by providing inputs on the CTCN's Capacity-building activities undertaken in 2022 and contributing to an e-booklet on "Capacity-building for Climate Technology Development, Deployment and Transfer".

VII. Support

The CTCN finalized its Resource Mobilization and Partnership Strategy for the period 2023 – 2027 to provide direction for its initiatives. This strategy is bolstered by a set of fact sheets outlining the CTCN's five transformation areas and key enablers. These materials aim to raise awareness about the new Programme of Work (PoW) and to engage potential partners in supporting CTCN's activities.

Collaboration with the Adaptation Fund

In addition to its collaboration with the Adaptation Fund under the first edition of the AFCIA programme (refer to the Innovation section), the CTCN has submitted a proposal for phase II of the AFCIA programme, seeking a total grant amount of approximately $12 million. AFCnetworIA II aims to continue supporting the testing and piloting of innovative climate adaptation technologies through locally led climate action. The proposal submitted by the CTCN also emphasizes the creation of digital public goods for replication and scaling up.

Furthermore, the CTCN collaborated with the Adaptation Fund in co-organizing several side events during the 2023 Adaptation Futures conference held from October 2nd to 6th, 2023.

Collaboration with the Global Environment Facility (GEF)

Regarding collaboration with the GEF, NDEs participated in the GEF national dialogues in Benin, Malaysia, Nicaragua, Tanzania, and Togo. It has also been reported, in some countries, that there have been positive correlations between CTCN TAs feeding into GEF requests for proposals (PIFs).

The CTCN is also a member of the Steering Committee for Phase IV of the Global GEF TNA project.

Collaboration with the Green Climate Fund (GCF)

The CTCN completed 6 GCF readiness projects in 2023, bringing the total number of GCF readiness projects implemented by the CTCN to 32 (11 million USD):

Bahamas	Countrywide Grid Stability Study in the Bahamas
Botswana	Updating technology needs assessment and development of technology roadmaps for prioritized technologies
Georgia	Updating of Georgia’s technology needs assessment (TNA) through development of technology road maps for prioritized technologies
Timor-Leste	Capacity building in Timor-Leste's renewable energy sector
Kyrgyzstan	The Technology Needs Assessment (TNA) and Technology Action Plans (TAPs) for the Kyrgyz Republic
Paraguay	Technical guidance and support to conduct a technology needs assessment and a technology action plan for Paraguay

In addition to its collaboration with the GCF on the implementation of GCF readiness projects, the CTCN has been involved in various other initiatives and events with the GCF, including:

- Supporting the development of projects worth USD 460 million through two GCF Project Preparation Facility proposals. These include the projects "Promoting the Adoption of Environmentally Sound Technologies by Small and Medium Sized Enterprises in Kenya to Enhance Production Efficiency and Business Value" by Kenya Commercial Bank (KCB) and

"West African Low Emissions and Climate Resilient Agriculture Financing Facility" by the West African Development Bank (BOAD).

- Assisting in the development of Cambodia's GCF concept note on agro-based enterprises.
- Conducting Deep Dive Clinic sessions at GCF's regional structural dialogues for Asia Pacific.
- Participation in GCF's Private Investment for a Climate Conference in Africa during the 2023 Africa Climate Week.
- Involvement in the GCF International Women's Day event, focusing on technology and innovation for gender equality.
- The GCF participated in several capacity-building events organized by the CTCN Partnership and Liaison Office including on Green Hydrogen Technology in Energy and Sustainable Mobility Sectors.
-

Pro-bono Technical Assistance Support

In 2023, a total of $1,000,000 in pro-bono support was secured for six technical assistance projects at various stages of implementation. This support included contributions from the Republic of Korea and the Ministry of Environment of Japan.

Two of those TAs, funded by the Republic of Korea, were completed in 2023:

Lao PDR	Technical Capacity Enhancement for Planning an Urban Public Transport System in Vientiane, Lao PDR
Vietnam	Feasibility study of "waste to energy" (Livestock Manure to Biogas and Organic fertiliser) for rural communities in Vietnam using anaerobic digestion technology

Engagement with the Private Sector and Philanthropies

1) CTCN engaged with IBM and have exchanged letters on supporting the work of the IBM Sustainability Accelerator Service and Technology Grant. Under this initiative CTCN will support through
    - Working with countries in MENA region to identify challenges in the water sector for technical assistances.
    - Creating a steering group to facilitate countries in MENA region recognize the need for development of a tool for predictive modelling in water sector.

- Facilitating meetings, trainings, and workshops regional meeting of technology focal points to provide business matchmaking opportunities for products and services offered by IBM Sustainability Accelerator Service and Technology Grant
- Providing oversight to the needs of countries concerning the products/services delivered to them, facilitating their satisfaction and acceptance.
- Inviting IBM to engage in networking opportunities within the Network, including regional NDE forums during climate weeks and other related events.
- Participating in joint events and promoting lessons learnt through case studies and knowledge exchange.

2) Global cement and concrete Association: CTCN facilitated meetings between GCCA and focal points of countries leading to implementation of standards for cement in Tanzania, Nigeria, Congo B and Rwanda

Co-funding and in-kind support

The CTCN also received co-funding and in-kind support from various partners for technical assistance interventions, capacity building activities, and events:

Co-financing	UNDP provided co-funding for the Technical Assistance project in Togo on climate-smart municipalities
Co-financing	Estrategia Local de Acción Climática (ELAC) sponsored a workshop to provide capacity building for NDEs from the LAC region as part of the CTCN's Green Hydrogen Capacity Building programme in November 2023
Co-financing	BOAD sponsored a workshop to provide capacity building for NDEs from the Africa region as part of the CTCN's Green Hydrogen Capacity Building programme in October 2023
In-Kind	The Korean Ministry of Science and ICT provided support throughout the year to facilitate meetings between NDEs and Korean Network members to discuss possible pro-bono support. They also supported initial discussions around potential twinning agreements with Korean Network members.
In-Kind	UNITAR hosted a capacity building workshop where the CTCN jointly developed online training on the UNFCCC Technology Mechanism and climate technology project design in September 2023. This certificate-based course was administered by UNITAR.

Facilitating the leveraging of follow-up financing for TA outputs and recommendations

The completion reports for CTCN TA projects outline potential additional financing opportunities resulting from the TA. However, securing such funding is not guaranteed and depends on factors beyond the CTCN's control. The below is an overview of potential leveraging of additional financing from CTCN TAs completed in 2023:

Country	TA name Information on Concept Note developed or follow-up action	Expected funding leveraged from the TA
Bangladesh	*Development of Framework for Real-Time Transport Information Systems for Public Transport in Greater Dhaka*	10,000,000 USD

	The Dhaka Transportation Coordination Authority (DTCA) intends to apply for KOICA (Korean) funding for a related Bus Information and Management System (BIMS).	
Belize	*Groundwater monitoring for mapping aquifers in Belize as a tool for climate change adaptation planning* GCF Concept Note developed: Groundwater monitoring for climate resilient Integrated Water Resources Management in Belize	2,762,000 USD
Georgia	*Updating of Georgia's technology needs assessment (TNA) through development of technology road maps for prioritized technologies* Four GCF Concept Notes were developed on: • E-mobility – 127,199,500 USD • National Programme on Energy Efficient Refurbishment of Public Buildings in Georgia - 102,000,000 USD • Green Hub - Waste to Energy (Biofuel) - 10,000,000 USD • Private Sector Support in Sustainable Management of Landscapes and Development of Green Agrotourism - 50,000,000 USD	289,199,500 USD
Honduras	*Designing nature-based solutions with an ethnic and gender-equity approach, to increase the resilience of rural mountain communities in protected natural areas affected by extreme weather events in Honduras* Concept Note developed targeting ICF financial resources combined with a GCF grant	25,800,475 USD
Kyrgyzstan	*The Technology Needs Assessment (TNA) and Technology Action Plans (TAPs) for the Kyrgyz Republic* Three GCF Concept Notes were developed: • Agriculture - 48,540,000 USD • Energy: 25,700,000 USD • Waste: 49,450,000 USD	123,690,000 USD
Lao PDR	*Technical Capacity Enhancement for Planning an Urban Public Transport System in Vientiane, Lao PDR* Proposal for a follow-up project, funded by Korea's KOTRA agency has already been submitted. This proposal was written in conjunction with KNUT and the Lao PDR DOT and, if accepted, will fund additional studies and a pilot project for ITS in Vientiane.	227,000 USD
Mongolia	*Enhancing climate resilience and economic sustainability of livestock farming in a rural community of Mongolia* Funding proposal submitted to Global Affairs Canada	7,600,000 USD
Papua New Guinea	*Developing a national policy for deploying and scaling up E-mobility and supporting sustainable infrastructure in Papua New Guinea* GGGI – GCF readiness proposal being developed to implement.	2,200,000 USD

	an e-bus pilot project with NCDC and DoT. based on market prices / cost estimates for 5 e-buses and the required charging infrastructure - 2,200,000 USD	
Paraguay	*Technical guidance and support to conduct a technology needs assessment and a technology action plan for Paraguay.* Three GCF Concept Notes developed: • Integrated Water Resources Management • Chemicals management - SF6 reduction • Waste Management – Recycling: Glass recycling	5,000,000 USD
Saint Kitts and Nevis	*Increase the water supply system resilience by managing aquifers recharge (MAR) and incorporating drought risks modelling as a planning tool for climate change adaptation measures* Leveraging the outcomes of this technical assistance, CTCN network member HR Wallingford is developing a Water Information System for the islands and building on the Drought forecasting system, funded by the Caribbean Public Health Agency (CARPHA).	100,000 USD
South Africa	*Capacity Development for the Deployment of Demand Response (DR) in South Africa to Mitigate against Carbon Emissions and Electricity Supply Shortages* CSIR is scoping funding to achieve a pilot project of the identified DR program.	
Timor-Leste	*Capacity building in Timor-Leste's renewable energy sector* A GCF Concept Note was prepared under the TA which proposes the installation of 152 MW capacity solar PV projects under various categories. 175 million USD - Government grant 25 million USD - GCF grant 25 million USD - equity capital	225,000,000 USD
Togo	*Development of a methodology to create climate-smart municipalities in Togo and the preparation of action plans for adaptation and mitigation to climate change for 4 of these municipalities*	25,000,000 USD
Vietnam	Feasibility study of "waste to energy" (Livestock Manure to Biogas and Organic fertiliser) for rural communities in Vietnam using anaerobic digestion technology (pro-bono from 2022) Name of institutions: Korea Eximbank The title of the investment: Greenhouse Gas International Reduction Project Feasibility Study Support Project	300,000 USD
Total	21 Concept notes and project proposals developed as a result of CTCN TAs completed in 2023	716,578,975 USD

VIII. Reporting against the 2023 Annual Operating Plan Indicators

Actions & Activities (as per the POW)	Updated Indicators (As approved at CTCN AB 22)	2023	Result for 2023
Impact indicators	Anticipated metric tons of CO2 equivalent (tCO2e) emissions reduced or avoided as a result of CTCN TA (disaggregated by annual and life of project)	No target	**Annual:** 517,984 tCO2e **Life of the project:** 33,407,948 tCO2e
	Anticipated number of direct and indirect beneficiaries as a result of the TA	No target	46 million direct and indirect beneficiaries
Innovation			
Intended outcome (from POW): Countries can accelerate innovation at different stages of the technology cycle through collaborative approaches.			
1.1 Support policies, institutional and regulatory frameworks and planning processes on innovation and strengthening National Systems of Innovation 1.2 Develop technological transition pathways and options for uptake of climate technologies	Number of countries that received. CTCN support for national institutional, legal, and regulatory frameworks to encourage climate technology RD&D and uptake (PMF indicator # 1.2.a)	4-5	8
	Number of countries with strengthened National System of Innovation as a result of CTCN support. (PMF indicator # 1.2.b)	5-7	6
1.3 Promote collaboration and partnerships in climate technology RD&D activities	Number of climate technology RD&D and innovation-related events (PMF indicator # 1.1.a)	5	17
	Number of participants in climate technology RD&D and innovation-related events (gender-disaggregated) (PMF indicator # 1.1.b)	100-150	388 (70% male, 30 % female)
	Number of knowledge resources related to RD&D and new and innovative technologies made available on the CTCN knowledge platform (PMF indicator # 1.1.c).	25-30	26
Implementation			
Intended outcome (from PoW): Countries have clear pathways and options to enhance inclusive, gender responsive, technology development and transfer, including endogenous and indigenous technologies			
2.1 Prioritize climate technologies and	Number of TAs supported (disaggregated by TA and FTA, and TNA/TAP/NDC) (PMF	30	25 (1 FTA; 24 TAs including 4 TNAs)

facilitate the development and implementation of NDCs, including TNAs, roadmaps and pilot studies and alignment with NAPs	indicator # 2.1.a)		127 TAs were in different phases of implementation in 2023: *25 TAs were completed * 53 TAs were in design stage * 10 in bidding stage * 39 under Implementation
	NDE feedback on uptake of CTCN TA and non-TA recommendations and outcomes to enhance technology development and transfer	No target	Data available in Sept. 2024
	Percentage of TA budget allocation targeting gender mainstreaming. (new)	5 % of each TA budget	Average of 3%
	Percentage of TA projects supported with a gender analysis (PMF Indicator # 4.2.e).	100%	72%
Enabling environment and capacity-building			
Intended outcome (from PoW): Countries have enhanced enabling environments, including policy and regulatory environments to develop, transfer and deploy climate technologies			
3.1 Design policies, regulations and standards that create enabling environments for climate technologies and deliver capacity-building	Number of policies, strategies, plans, laws, agreements or regulations supported by the technical assistance (PMF indicator # 4.2.a)	10	22
3.2 Enhance the capacity of the NDEs to plan, monitor and achieve technological transformation	Number of CTCN training sessions and capacity strengthening activities (PMF indicator # 4.2.b)	10	15
	Number of participants attending CTCN training sessions and capacity strengthening activities (disaggregated by gender) (PMF indicator # 4.1.d.)	1000 - 1500	1,163 (65% male; 35% female)
	Total number of events organized or co-organized by the CTCN (PMF indicator # 4.1.c.)	15	16
	Number of technology descriptions, publications, national plans, and other information resources made available on the CTCN knowledge platform (PMF indicator # 4.1.a)	100	~110

	Number of site visits to CTCN knowledge portal (indicator 4.1.e)	10% increase compared to 2022	131% increase 235K views in the last 12 months. (April 2023 – April 2024) 171k views in Jan2023 – December 2023
	Number of people reached through CTCN social media channels (PMF indicator # 4.1.f)	10% increase compared to 2022	Social Media followers increased by: 66.2% on LinkedIN (from 2646 followers to 3996 followers) 61.5% on Facebook (from 2287 to 3719 followers) 131.2% on Twitter – from 3757 to 4930 followers
	Number of mentions of CTCN in media (PMF indicator # 4.1.g)	30	We are unable to provide specific figures at this time as we are still in the procurement process for the monitoring platform.
Collaboration and stakeholder engagement			
Intended outcome (from PoW): Stakeholders are actively engaged and have strengthened capacity to implement climate action through collaboration			
1.1 Promote collaboration and partnerships in climate technology RD&D activities	Number of partnership and twinning arrangements (new)	5- 10	6- letters of intent signed
1.1 Support policies, institutional and regulatory frameworks and planning processes on innovation and	Number of deliverables produced during the technical assistance) (PMF indicator # 3.1.a)	80-100	293

strengthening National Systems of Innovation (NSI)			
4.1 Strengthen knowledge and engagement in an inclusive manner and facilitate collaboration among relevant international organizations, the private sector, academia, and civil society	Total number of members in the CTC Network (PMF indicator # 3.2.a)	3-5% increase compared to 2022	4.9% increase compared to 2022
	Number of collaborations with international organizations, private sector, academia, civil society organizations and Network members for the co-development of activities, including trainings, workshops, and knowledge products. (new)	10 – 15	46
	Number of matchmaking events organized (new)	3-5	6
Support			
Intended outcome (from PoW): Countries have access to Technical Assistance and financial support to enhance development and transfer of gender responsive technologies			
5.1 Facilitate access to Financial Mechanism of the UNFCCC and mobilize various types of support including pro- bono and in-kind support	Number of events and trainings co-organized with finance institutions including the operating entities of the Financial Mechanism (GEF, GCF), the Adaptation Fund and MDBs (PMF indicator # 5.1.a)	3-5	3
	Percentage increase of funding mobilized from existing bilateral donors and through new donor Parties (revised from PMF indicator # 5.A)	Actual target dollar amount to be calculated based on the endorsed resource mobilization and partnership strategy which reads: At least 20% increase of the baseline over the PoW period. Baseline: 2018-2022 total contribution from bilateral donor: USD 37,503,081	% increase will be calculated at the end of the 5-year period Total contribution from bilateral donors thus far for 2023-2027: 17,021,547 (45% of the total funding that was mobilized for the 2nd PoW period has already been mobilized in the first year of the 3rd PoW period)
	Number of CTCN technical assistance supported by the GEF/GCF/AF (PMF indicator #	8 - 10	10 (4 AFCIA; 6 GCF Readiness)

	5.1.c)		
	Percentage increase in funding mobilized through resources from relevant operating entities of the Financial Mechanism, the Adaptation Fund, and other international financial institutions (new)	Actual dollar amount target to be calculated based on the endorsed resource mobilization and partnership strategy which reads: At least 100% increase over the PoW period	0
	Value of pro bono and in-kind support secured for CTCN activities (PMF indicator # 5.2.a)	Actual donor amount target to be calculated based on the endorsed resource mobilization and partnership strategy which reads: At least10 – 15 % increase over the PoW period	1,000,000
	Level of donor engagement (disaggregated by bilateral donor Parties, and international financial institutions) (PMF indicator # 5.2.b)	20 donors engaged	21 (10 bilateral donors; 11 international financial institutions)
	Level of engagement with private sector and philanthropic organizations (new)	Develop partnerships with a minimum of 1 private sector and/or philanthropic organization	1partnership approved
	Number of technology proposals developed through CTCN technical assistance anticipated to be supported by the GEF/GCF/AF and other finance entities, including matchmaking (PMF indicator # 5.2.c)	3-5	27 * 2 AFCIA Concept Notes * 4 GCF PPFs * 21 CTCN TAs

			completed in 2023 with CNs developed)
	Number of impact stories developed and disseminated widely (new)	4-6	25 news pieces 13 stories

Annex 1: List of CTCN Technical Assistance Projects Completed in 2023

Water-Energy-Food Nexus

Country	Objective	Title
Saint Kitts and Nevis	Adaptation	Increase the water supply system resilience by managing aquifers recharge (MAR) and incorporating drought risks modelling as a planning tool for climate change adaptation measures (AFCIA)
Seychelles	Adaptation	Formulation of a Pre-Concept Proposal to the Innovation Facility of the Adaptation Fund, for a holistic watershed management approach including wetland creation for water supply (FTA)

Buildings & Resilient Infrastructure

Country	Objective	Title
Bangladesh	Adaptation	Technology for Monitoring & Assessment of Climate Change Impact on Geomorphology in the Coastal Areas of Bangladesh
Belize	Adaptation	Groundwater monitoring for mapping aquifers in Belize as a tool for climate change adaptation planning
Honduras	Adaptation	Designing nature-based solutions with an ethnic and gender-equity approach, to increase the resilience of rural mountain communities in protected natural areas affected by extreme weather events in Honduras (AFCIA)
Panama	Adaptation	Development of a Marine Dynamics database for the Panamanian coasts to assess vulnerability and climate change impacts to sea level rise
Peru	Adaptation	Monitoring system of adaptation measures in the water sector, analysis of barriers and financial sustainability for its implementation
Togo	Adaptation, Mitigation	Development of a methodology to create climate-smart municipalities in Togo and the preparation of action plans for adaptation and mitigation to climate change for 4 of these municipalities (Co-financed by UNDP)
Vietnam	Adaptation	Localization of water resources management technology to adapt to climate change in Hong-Thai Binh River basin (AFCIA)

Sustainable Mobility

Country	Objective	Title
Bangladesh	Mitigation	Development of Framework for Real-Time Transport Information Systems for Public Transport in Greater Dhaka
Laos	Adaptation, Mitigation	Technical Capacity Enhancement for Planning an Urban Public Transport System in Vientiane, Lao PDR (Pro-bono – Republic of Korea)
Papua New Guinea	Mitigation	Developing a national policy for deploying and scaling up E-mobility and supporting sustainable infrastructure in Papua New Guinea

Energy Systems

Country	Objective	Title
Bahamas	Mitigation	Countrywide Grid Stability Study in the Bahamas (GCF Readiness)
Dominica	Adaptation, Mitigation	Technical and economic feasibility of solar units and water storage on public buildings in Dominica
South Africa	Mitigation	Capacity Development for the Deployment of Demand Response (DR) in South Africa to Mitigate against Carbon Emissions and Electricity Supply Shortages
Timor-Leste	Mitigation	Capacity building in Timor-Leste's renewable energy sector (GCF Readiness)
Vanuatu	Mitigation	Enhancing Vanuatu's market for energy efficient appliances
Vietnam	Mitigation	Feasibility study of "waste to energy" (Livestock Manure to Biogas and Organic fertiliser) for rural communities in Vietnam using anaerobi digestion technology (Pro-bono – Republic of Korea)

Business and Industry

Country	Objective	Title
Costa Rica	Adaptation, Mitigation	Supporting the transition to a circular economy in Costa Rica
Mexico	Mitigation	Analysis of the current situation of the construction and demolition sector in respect of the Circular Economy in Mexico City
Mongolia	Adaptation	Enhancing climate resilience and economic sustainability of livestock farming in a rural community of Mongolia (AFCIA)

Technology Needs Assessment

Country	Objective	Title
Botswana	Adaptation, Mitigation	Updating technology needs assessment and development of technology roadmaps for prioritized technologies (GCF Readiness)
Georgia	Adaptation, Mitigation	Updating of Georgia's technology needs assessment (TNA) through development of technology road maps for prioritized technologies (GCF Readiness)
Kyrgyzstan	Adaptation, Mitigation	The Technology Needs Assessment (TNA) and Technology Action Plans (TAPs) for the Kyrgyz Republic (GCF Readiness)
Paraguay	Adaptation, Mitigation	Technical guidance and support to conduct a technology needs assessment and a technology action plan for Paraguay (GCF Readiness)