CLIMATE TECHNOLOGY CENTRE & NETWORK

PROGRAMME OF WORK 2023-2027

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1 INTRODUCTION

1.1 INTRODUCING THE UN CLIMATE TECHNOLOGY CENTRE AND NETWORK

The UN Climate Technology Centre and Network (CTCN) is the implementation arm of the Technology Mechanism of the United Nations Framework Convention on Climate Change (UNFCCC). The CTCN promotes technology transfer at the request of developing countries as they seek to meet their NDC targets and Paris Agreement commitments.

Technologies are considered vital to building climate-resilient societies, transitioning to low-carbon economies, and bridging an ever-expanding reliance on modern technical know-how in order to create green jobs and compete in the global marketplace. An overwhelming number of developing countries’ Nationally Determined Contributions indicate a requirement for technology support and capacity development in order to implement their commitments. Many of the necessary technologies exist already. The real challenge is to get them where they are needed, to adapt them and to scale up.

The Climate Technology Centre is a unique demand-driven Mechanism that has been created specifically to meet these needs. Since its inception in 2014, the CTCN has served over 108 developing countries, providing access to over 390 targeted mitigation and adaptation technologies that enable countries to achieve their NDCs and commitments under the Paris Agreement. The CTCN accomplishes this by serving as a trusted matchmaker, delivering technologies on demand policy, regulatory, market development, and finance solutions by mobilizing the private sector and technology actors.

1.1.1 The CTCN Value Proposition

According to the findings of the second independent review of the CTCN commissioned by the UNFCCC and conducted by Ernst & Young (2021), “The CTCN operates in a very specific space without real competition from similar centres. It is therefore well-positioned to help countries meet their Nationally Determined Contributions and Sustainable Development Goals”.

The CTCN’s value proposition sets out its competitive advantage and seeks to articulate the value that is delivered through the CTCN’s services.

- The leading UN body for climate change and technology information and implementation: The CTCN is the only designated entity under the UN Framework Convention on Climate Change responsible for technology implementation. The CTCN supports developing countries at their request to develop and deploy technologies as they seek to meet their climate change and sustainable development goals. The CTCN also offers the world’s largest online source of cleantech information (www.ctc-n.org) access to mitigation and adaptation descriptions, case studies, publications, technology service providers, tools and webinars.

- A Demand-driven Process: National Designated Entities (technology representatives selected by each country’s government) coordinate requests from local communities, civil society, the private sector, and public institutions, ensuring alignment with NDCs and national climate change priorities in-country.

The Centre is dedicated to gender mainstreaming and youth inclusion in its technology work.
date, the CTCN has received 398 requests for technology transfer from 108 countries. The ability to respond to the diverse range of requests and provide customised services is made possible through a continuously growing number of technology service providers in the CTCN Network members (over 700 globally), who are contracted to provide technical assistance and capacity building to developing countries on environmentally sound technologies.

✓ **Tailored Technology Assistance:** CTCN experts provide one on one support to National Designated Entities to identify and implement appropriate environmentally sound technologies that suit their national circumstances.

✓ **Creating Economic Opportunities:** By fostering endogenous innovation and entrepreneurship for environmentally sound or green technologies new opportunities are created.

✓ **Support for the full technology cycle and complete spectrum of mitigation and adaptation technologies:** The CTCN delivers technical assistance, capacity building and knowledge sharing for a full range of technology priorities, from needs assessment and innovation to identifying financing sources for upscaling. The Centre also strengthens the underlying technology structures which enable technology development and deployment, such as policies, regulatory structures, and market creation.

✓ **Focus on Gender and Youth:** The Centre is dedicated to IPO, gender and youth inclusion in its technology work. The CTCN co-hosts the global Gender-Just Climate Solutions capacity building programme, and also operates Youth Climate Innovation Labs, and an online Gender Hub providing hundreds of gender-related publications, tools, and case studies.

The approach to this 3rd Programme of Work involves building on the CTCN’s success of the first 8 years. Since 2017, countries have increasingly sought CTCN support to develop and implement technical assistance projects utilizing their GCF Readiness and Preparatory Support Programme allocation. A selection of the most successful dimensions of the CTCN value created in the past 8 years is outlined in Figure 1 below:

**Figure 1: CTCN Value Proposition informed by previous success**
The CTCN’s value proposition is also informed by the experience gained in engaging with parties, the finance mechanism of the UNFCCC and other stakeholders in the acceleration of technology transfer. The development of new applications of the transferred technology signifies an important step in the growth of innovation capacity of a country. It is based on an acknowledgement that there is a large appetite and need for adaptation and mitigation-related technical assistance in developing countries. It recognizes that developing countries continue to need support to articulate their adaptation and mitigation technology demands. The ability to learn, use and adapt the acquired technology remains critical to successful implementation. The implementation of the 3rd Programme of Work further acknowledges that developing countries are seeking initiatives to improve their capacity to identify and assess innovative adaptation and mitigation practices, products and technologies. It is further informed by an approach that includes the following 4 dimensions:

**Figure 2: CTCN Delivering Value across this Programme of Work**

1.2 Approach to delivery of the 3rd Programme of Work

The CTCN’s approach to delivery of its Programme of Work for the period 2023-2027 is based on three components:

- **Demand driven approach to meet requests from countries**
  The CTCN serves as a demand driven and trusted technology partner, matching developing country needs for climate change-related equipment, methods, and capacity development. Climate challenges and opportunities are dependent on various factors which includes local conditions, size of market, levels of economic development, absorptive capacities etc. Climate change is an amplifier of existing climate variation and will affect diverse communities, regions and industries in different ways, presenting both opportunities and risks. For example, Small Island Developing States face unique challenges due to their limited geographical area and particular exposure to rising sea levels and extreme weather events. At the same time, Small Island Developing States are heavily dependent on imported oil and other fossil fuels to meet their energy needs, which poses economic and energy vulnerability to the islands. By working closely with NDEs the CTCN can ensure that support to climate technology adoption, development, and transfer is available in response to the challenges.

- **3 Enablers that shape 5 system transformations**
  The Programme of Work is building on achievements to date and is introducing 3 Enablers (Innovation, Digitalisation and Collaboration for climate action) that shape 5 system transformations. It acknowledges that many essential technologies already exist — the challenge is to get them deployed where they are needed, and to build the enabling environments to support technology innovation, adaptation and scale-up implementation. The past 8 years of technical assistance has reflected how countries are seeking system wide transformations in areas such as Water-Energy-Food Nexus, Electro-mobility, Buildings, infrastructure resilience and nature-based solutions, and Energy systems.

- **Enhancing collaboration with the Technology Executive Committee**
  The CTCN acknowledges the importance of Collaboration with bodies and constituency groups both under and outside the Convention. This Programme of Work seeks to enhance its coordination with the Technology Executive Committee (TEC) to delivering on the goals of the Technology Mechanism. In addition, the CTCN will focus on to
strengthen collaboration with the owners of technologies through its network of institutions including the financial institutions, research institutions, consortium members, NDEs and all key stakeholders. The collaboration would be reinforced through:

a. **Facilitation of information sharing across countries via South-South and triangular collaboration:** Collaboration and knowledge sharing are central pillars of the CTCN. The CTCN aims to reinforce the capacity of countries to facilitate information-sharing, collaboration and networking. This will enable the exchange of best recommended practices, experience and knowledge on technology development and transfer and on endogenous technologies. This also involves strengthening the capacity of countries and communities to be more resilient and to cope better, in terms of skills and the ability to access suitable finance for scale up and replicative actions.

b. **Creating markets through removal of institutional and regulatory barriers:** The barriers that are often encountered, and the tools to enable full climate technology transfer, differ significantly across countries. They often include regulatory barriers, a lack of information and policy uncertainty, size of markets etc. Through this programme of work the CTCN would facilitate the implementation of mitigation and adaptation actions, including the use of planning tools and processes such as NDCs, TNAs, NAPs and technology road maps, development of standards, regulations and enabling policies, developing markets based financial mechanism through private sector engagement and aggregation of markets through regional standards using a multi-country approach. The CTCN can also serve as a technology broker, connecting countries’ needs to partner that can provide the technologies, capacity building, knowledge and finance they seek.

c. **Multi-country approach:** The CTCN approach uses a common framework of activities based on a theme or focus area adapted to different national circumstances, and can be used across a subregion, region, or continents. The CTCN will continue to replicate its multi-country and programmatic approaches in implementing technical assistance activities. Multi-country projects promote capacity building, analysis and research at a regional level that permeate direct support at country level but also present several efficiency gains such as lower transactional costs and harmonization of policies and regulations across a region. The new Programme will build on initiatives, such as the multi-country technical assistance requests, such as bioenergy potential assessment across 15 countries in Africa, that identified market opportunities for the private sector to bypass the exploitation of traditional biomass. There is large potential for harmonization of policies and market consolidation, enhanced stakeholder engagement, scalable impacts, and North-South, South-South and Triangular collaboration. This new Programme of work will build on the approach that has been tested for 4 distinct themes: minimum energy performance standards for transformers and refrigerators (USD 2.8 million; 9 countries); TNAs (USD 4 million; 13 countries); circular economy roadmaps (USD 3 million; 20 countries); and e-mobility (USD 1.5 million; 7 countries).

d. **Engagement with Financial Finance Mechanisms of the UNFCCC:** Such engagement includes interaction with Adaptation Fund, Green Climate Fund and the Global Environment Facility as follows:

   **The Adaptation Fund:** The new MTS 2023-27 of the Adaptation Fund will a strategic emphasis on locally led adaptation action, as a cross-cutting theme. This will allow for continuity of the Fund’s work under the newly launched funding windows and grant modalities such as innovation for adaptation technologies etc. The CTCN will continue to work with the Adaptation Fund to scale up innovative technologies for adaptation as well as take up new opportunities for engaging with the Fund’s Readiness Grant Funding and support for Direct Access entities.

   **The Green Climate Fund:** The strategic plan of the GCF (2020-2023) references collaborating on innovation and technology, including strengthen collaboration with the Technology Mechanism of the UNFCCC, to promote technology development and transfer, innovation, incubation, and acceleration. The GCF Secretariat is currently developing the draft strategic plan for 2024-2027 as guided by the Board. The CTCN envisages to work with parties and help prepare their readiness projects including the PPF for GCF support (including the GCF’s incubator and accelerator programme).

   **The Global Environment Facility:** The CTCN will continue its engagement with the GEF and explore opportunities for accessing the GEF 8 Funding Cycle.

To achieve success, the CTCN must continue to work collaboratively with stakeholders in the delivery of the Programme of Work and secure /ensure that the financial and technical parameters are in place. Additional information on the long-term sustainability of such CTCN interventions is presented in Annex B.
Limiting global warming to 1.5°C requires an ambitious level of large-scale deployment of many existing and new climate technologies far beyond current deployment trends. Accelerating the deployment, diffusion and transfer of climate technologies represents a key pillar to enhance low emission and climate-resilient development. The widespread diffusion of climate technology has implications for people, livelihoods and ecosystems. Many countries are already taking steps to build resilient societies and economies, while managing future risks. Successful adoption of the climate technologies requires collaboration between governments and stakeholders, including civil society, across regions and sectors. Developing countries face economic, institutional or technological barriers for the transfer and diffusion/application of climate technologies. Such barriers include a lack of capacity, access to finance and the absence of coordinated community of knowledge expertise and action.

The UN’s Intergovernmental Panel on Climate Change (IPCC) Working Group I contribution to the Sixth Assessment Report, (Climate Change 2022: Mitigation of Climate Change) was released in April 2022. This is the second report from the IPCC in 2022 following on from IPCC report in February that cites: Climate change is a threat to human wellbeing and planetary health. Any further delay in concerted anticipatory global action on adaptation and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all. The April report on climate mitigation confirms the transition to net-zero is underway, albeit inadequately. It cites how containing global temperature rise to within 1.5 degrees is still possible but with an emergency response strategy starting now.

We are at the tipping point on climate change. Technology will be a critical factor in reversing some of the worst impacts of climate change going forward, as well as a critical enabler in achieving net-zero emissions goals. Reducing GHG emissions requires significant shifts in our systems and the setting and the achievement of carbon dioxide emissions reduction targets, in terms of sustainable development, energy security and environmental protection. Accelerating the provision of technical assistance on technology related actions provide co-benefits in the form of improving energy access and sustainable development, providing a response to climate change to protect people, livelihoods and ecosystems. There is significant potential in developing countries to plan for and implement the most effective and efficient low emissions and climate resilient systems locally as part of their essential development and growth in all sectors; and the CTCN has been established to support developing countries at such crossroads, where choices of technology have to be made for meaningful achievement. The solutions that countries seek are necessary to break through identified obstacles in technology decision making and prioritization, create enabling environments, and mobilize the financing needed to meet climate change goals. In meeting these needs the CTCN has supported over 100 developing countries to progress their climate and sustainable development agendas.

The Governments (‘Parties’) to the Paris Agreement were required to communicate new or updated Nationally Determined Contributions (NDCs) from 2020. Many NDCs are insufficient to achieve the goals of the Paris Agreement and limit global warming to a maximum of 1.5°C or well below 2°C. The CTCN can contribute to providing support to the developing countries through its services namely technical assistance, capability development and knowledge sharing to enable parties enhance NDC actions. Since 2018 the CTCN Secretariat was reorganised along geographical/regional focus rather than by service line in a decentralised delivery model. This regional approach supported the capacity-building and stakeholder engagement efforts of the CTCN in effectively mainstreaming climate technologies in national planning and enhanced access to financial resources. The CTCN and TEC have collaborated on publications that focus on technology needs, technology challenges, linkages between policy and implementation and linkages between NDCs and national adaptation plans.1

The CTCN through this Programme of Work can support countries in scaling up and reaching their NDC adaptation and mitigation targets through the deployment of climate technologies.

1 https://unfccc.int/ttclear/tec/techandnc.html
2.1 INTRODUCING THE TECHNOLOGY MECHANISM

In 2010, the Conference of the Parties decided (Decision 1/CP.16) to establish a Technology Mechanism, under the guidance of, and accountable to, the Conference of the Parties (COP), that included the establishment of a Climate Technology Centre and Network (CTCN). The Technology Executive Committee (TEC) and the CTCN form the Technology Mechanism. The TEC is the policy arm of the Technology Mechanism. It focuses on identifying policies that can accelerate the development and transfer of low-emission and climate resilient technologies. The CTCN is the implementation arm of the technology mechanism and promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. The CTCN provides technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries by harnessing the expertise of a global network of technology companies and institutions.

The Technology Mechanism’s two bodies, the Technology Executive Committee (TEC) and the CTCN, work together to enhance climate technology action. Their complementary functions support developing country efforts to address both policy and implementation aspects of climate technology development and transfer. They work to enrich coherence and synergy in the delivery of climate technology support and respond effectively to the needs of countries. The nature and extent of engagement has kept improving based on the dynamism of the demanded services and the stage of growth of the entities of the mechanism. The establishment of the CTCN was aligned to an acknowledgement by Parties "that climate action should follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate".

In 2010, following competitive selection process, the COP decided that the CTCN would be hosted by UNEP through a memorandum of understanding with the UNFCCC, with the support of a consortium of 11 organisations. In becoming operational the CTCN developed its mission: to stimulate technology cooperation and to enhance the development and transfer of technologies and to assist developing country Parties at their request, consistent with their respective capabilities and national circumstances and priorities: to build or strengthen their capacity to identify technology needs, to facilitate the preparation and implementation of technology projects and strategies taking into account gender considerations to support action on mitigation and adaptation and enhance low emissions and climate-resilient development. Consistent with the COP decisions, the CTCN serves three main functions:

- (i) Provision of Advice
  Providing advice and support related to the identification of technology needs and the implementation of environmentally sound technologies, practices and processes.

- (ii) Strengthening capacity
  Facilitating the provision of information, training and support for programmes to build or strengthen capacity of developing countries to identify technology options, make technology choices and operate, maintain and adapt technology.

- (iii) Facilitating action
  Facilitating prompt action on the deployment of existing technology in developing country Parties based on identified needs.

Joint activities with the Technology Executive Committee presents great opportunities to build on the TEC’s analysis of policy and technical issues related to climate technology development and transfer and link this with the expertise of the Climate Technology Centre’s Network.

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2 Decision 1/CP.16, para. 117. All relevant decisions are available at: [https://unfccc.int/ttclear/negotiations/decisions.html](https://unfccc.int/ttclear/negotiations/decisions.html)
3 [https://www.ctc-n.org/about-ctcn/founding-documents](https://www.ctc-n.org/about-ctcn/founding-documents)
4 Decision 1/CP.16, page 20, para. 123.
Through a full range of technology services, the CTCN and TEC can collaborate to catalyse and accelerate action to unlock transformational change and support countries in the implementation of technology development and transfer guided by COP decisions and the Paris Agreement. There are natural points of intersection between both arms of the Technology Mechanism in areas such as:

- Providing support for innovation and collaborative RD&D facilitation
- Recommending guidance and actions on climate technology policies and programmes
- Developing decision-making tools/data, and technology identification and prioritization
- Promoting studies targeting the feasibility and adaptation of technology options
- Facilitating collaboration between climate technology stakeholders, in collaboration with technology experts and providers.
- Catalysing the development and use of climate technology road maps and action plans, Sectoral roadmaps and NDC implementation strategies
- Guiding policy and regulation to create enabling environments
- Piloting & deployment of technologies (including private sector engagement)
- De-risking, upscaling, and finance coordination

A collaborative approach to delivery will enhance the capacities of Parties to plan, monitor and achieve technological transformation in accordance with the purpose and goals of the Paris Agreement.5

2.2 TECHNOLOGY TRANSFER UNDER THE UNFCCC

Technology development and transfer as a mechanism for combating climate change, first featured within the Article 4.5 of the UNFCCC Marrakesh Accords (2001) where parties agreed to work together on a set of technology transfer activities. The UNFCCC ‘s Bali Action Plan (2007, Para1.d) includes the provision of low-carbon technology as one of four ‘building blocks’ towards a binding agreement, alongside mitigation, adaptation and finance. The decisions under the Durban Platform for Enhanced Action (2011) brought to fruition much of the progress made within the Bali Action Plan (2007), Copenhagen Accord (2009) and Cancun Agreements (2010) by committing to a full operationalization of the Technology Mechanism in 2012. Under decision 1/CP.16, para 123 Parties identified “the need for effective mechanisms, enhanced means, appropriate enabling environments and the removal of obstacles to the scaling up of the development and transfer of technology to developing country Parties” (1/CP.16, page 18, para. B).

The Paris Agreement6, negotiated and adopted in 2015 and entered into force in 2016, requires climate change mitigation and adaptation actions from all Parties post 2020. Article 10 highlights the importance of technology for the implementation of mitigation and adaptation actions under the Agreement. The facilitation and promotion of enhanced action on technology can help countries to achieve the purpose and goals of the Paris Agreement, Actions and activities should facilitate the implementation of collaborative technology development and transfer, build on the past and ongoing work of the Technology Mechanism and take into account the role of North–South, South–South, triangular and regional collaboration in facilitating implementation.

This is the CTCN’s third programme of work that spans 5 years (2023-2027) and is established to enable the CTCN to fulfil its mandate as received from COP. It considers how the CTCN can best fulfil its mandate while also reflecting the additional responsibilities assigned to the CTCN by the COP, including decisions at COP21 (Paris) and COP22 (Marrakesh) resulting in the adoption of the Technology Framework at COP24 (Katowice). Such decisions called for enhanced co-operation and collaboration with the Financial Mechanism (Decision 13/CP.21, Paris, 2015) and engagement with the Green Climate Fund with respect to utilizing the Readiness and Preparatory Support Programme and the Project Preparation Facility (Decision 14/CP.22, Marrakech, 2016.) Furthermore, this programme of work considers actions aimed at operationalizing the Paris Agreement, (Decision 1/CP.21, para. 67) and its elaboration of the Technology Framework. Further information on decisions informing future activities of the CTCN are in Annex A.

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1 Decision 1/CP.21, Annex, Article 10, para.3
2 The goals of the Paris Agreement are to hold the increase in the global average temperature to well below 2°C above pre-industrial levels, to pursue efforts to limit this increase to 1.5°C, to increase the ability to adapt to the adverse impacts of climate change and to make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.
2.3 Objectives

The goal of this Programme of Work is to enable the CTCN to fulfil its mandate from COP. In doing so, it frames the activities required to deliver on functions including action on mitigation and adaptation and enhancing low emissions and climate-resilient development.

Throughout its first two Programmes of Work the CTCN has provided technical assistance and enhanced capacity-building for climate technology development and transfer at the request of Parties. Within this third programme of work the CTCN is recognizing that further actions and approaches are required to enable the CTCN to develop, strengthen and enhance countries’ capabilities to take effective climate action in the context of the Paris Agreement and associated Technology Framework.

This Programme of Work objective is:

Support Parties to achieve their commitments to the Paris Agreement through Technology development and Transfer in order to implement their NDCs, improve resilience to climate change impacts and reduce Green House Gas Emissions.

To reach the ambitious goals of the Paris Agreement, parties agreed that appropriate mobilization and provision of financial resources, a new technology framework and enhanced capacity-building is to be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives.7

This 3rd Programme of Work builds on the achievements of the past 8 years of providing Technical Assistance to developing countries which are increasingly seeking environmentally sound technology solutions that support systems transformation. Therefore, in continuing its demand driven approach to supporting technology transfer, the 3rd Programme of Work of the CTCN will also introduce 3 Enablers: Innovation, Digitalisation and Collaboration that will contribute to shaping 5 system transformations which have been identified as Water-Energy-Food Nexus, Electro-mobility, Buildings, infrastructure resilience and nature-based solutions, and Energy systems.

A core dimension of this mandate includes the CTCN facilitating a network of national, regional, sectoral and international technology networks, organizations and initiatives with a view to implementing technical assistance in a resource efficient manner while promoting participatory, inclusive approaches ensuring social and gender justice.

The next 5 years of the CTCN (2023-2027) will focus on a suite of activities that contribute to the development, strengthening, and enhancement of countries’ capabilities to take effective climate action in the context of the Paris Agreement and associated Technology Framework.

The 2023-2027 Programme of Work responds to the need to rapidly accelerate the shift towards climate resilience and low emissions development. It aims to facilitate the implementation of mitigation and adaptation action, delivering transformational change and achieving sustainable outcomes and impacts. It is placed in the context of countries presenting and reviewing their nationally determined contributions with the overall intention of creating more ambitious NDCs that align to commitments under the Paris Agreement. In enabling countries to achieve their climate ambition and development in general for developing countries, the CTCN will help to utilise planning tools and processes such as Technology Needs Assessments (TNAs) and enable the implementation of their results (particularly technology action plans and project ideas). It builds on previous CTCN capacity-building related to TNAs; and assistance to shape national adaptation plans, technology road maps, and enhanced enabling environments.

7 https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement/key-aspects-of-the-paris-agreement
2.4 BUILDING ON MANDATE

Since its establishment, several developments have positively impacted the CTCN, most notably the Paris Agreement. The Paris Agreement, adopted by 195 member countries at the conclusion of COP21 in Paris in 2015, brought about renewed enthusiasm towards a global co-operative climate change policy and action. Within the context of the Paris Agreement, the following initiatives/instruments have informed this Programme of Work:

2.4.1 Article 10 of the Paris Agreement

Art. 10 of the Paris Agreement establishes a Technology Framework (See Figure 2) to provide ‘overarching guidance’ to the Technology Mechanism. The Paris Agreement Work Programme included two specific mandates: 1) to elaborate the Technology Framework and 2) to define the scope of and modalities for the periodic assessment of the Technology Framework.

2.4.2 The Technology Framework

The Parties to the Paris Agreement approved the Technology Framework in 2018, which defined five ‘focused areas of action’, namely: innovation, implementation, enabling environment and capacity building, collaboration and stakeholder engagement and support. The Technology Framework was established to provide overarching guidance to the work of the Technology Mechanism in supporting the implementation of the Paris Agreement. The five key themes of the framework ‘represent focused areas of action to be undertaken’.

The CTCN has responded to the Technology Framework in the following ways (see Figure 4):

- Widening of the CTCN’s annual work programme to contribute to ‘transformational changes’ through an update of its existing services, including the country-driven technical assistance processes, to maximise impact.
- Development of a Results Framework that elaborates a monitoring and evaluation structure that aligns CTCNs core mandate as outlined in the UNFCCC with the Technology Mechanism of the Paris Agreement.
- Incorporating lessons from multiple reviews of the CTCN.
- Enhancing collaboration with the Technology Executive Committee and the Finance Mechanism of the UNFCCC.
- Placing more emphasis on the services of the CTCN in delivering targeted technical assistance linked to developing countries’ priorities identified in their NDCs.

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8 Includes long-term vision on technology development and transfer to support mitigation and adaptation actions. 2. Parties’ to strengthen cooperative action on technology development and transfer. 3. Technology Mechanism to serve the Agreement. 4. Establish a technology framework to provide overarching guidance to the work of the Technology Mechanism in supporting the implementation of the Agreement. 5. Acceleration, encouragement and enabling innovation, in particular early stages of technology, and related support. 6. Support for Article 10 implementation, and link to the global stocktake
8 Decision 15/CMA.1
10 The Technology Framework was negotiated over the course of 2016-2018 and finalised in 2018 at Katowice (COP 24) is structured into three sections: (1) purpose; (2) principles; and (3) key themes, under which the Technology Mechanism’s ‘actions and activities’ are grouped. Technology innovation can be fostered through: (1) the active engagement of the private sector and closer collaboration between the public and private sector, (2) new collaborative approaches to climate technology RD&D, and (3) the creation and promotion of relevant enabling policy to incentivize and nurture a supportive environment for innovation
11 Decision 15/CMA.1, Annex, para 4
2.4.3 Global Stocktake and Periodic Assessment of the Technology Mechanism

The Paris Agreement also provides for a global stocktake which assesses the collective progress of all Parties towards achieving the goals of the agreement. The periodic assessment will focus on the effectiveness of the Technology Mechanism and the adequacy of support provided to the Technology Mechanism in aiding the implementation of the Paris Agreement. The Assessment takes place every five years (starting in 2021), and its outcomes will serve as inputs to the global stocktake.

2.4.4 Collaboration with the Financial Mechanism of the UNFCCC

The CTCN has, since 2016, established a partnership with the Adaptation Fund, the Global Environment Facility and the Green Climate Fund. Going forward such collaboration with the Finance Mechanism of the UNFCCC presents an opportunity for the CTCN to present an evidence-based approach and strengthen relationships and potential project co-creation on the transfer of environmentally sound technologies to developing countries.

The Conclusions by the Chair of the SBI at its 56 Meeting welcomed the increased collaboration between the Technology Executive Committee, the Climate Technology Centre and Network and the operating entities of the Financial Mechanism and encouraged them to strengthen their collaboration. Such collaboration is achieved through enhanced coordination between the National Designated Entities for technology development and transfer, the national designated authorities for the Green Climate Fund and the operational focal points for the Global Environment Facility to facilitate further coordination and explore potential cooperation in a country-driven manner.

The COP decisions called for enhanced co-operation and collaboration with the Financial Mechanism (Decision 13/CP.21, Paris, 2015) and engagement with the Green Climate Fund with respect to utilizing the Readiness and Preparatory Support Programme and the Project Preparation Facility (Decision 14/CP.22, Marrakech, 2016). In delivering on this guidance, the CTCN established a liaison office in G-Tower in Songdu, Korea in 2022.
2.5 LEARNING FROM INDEPENDENT REVIEWS

The first independent review of the CTCN, the Independent review of the effective implementation of the CTCN, mandated by the COP and commissioned by the UNFCCC Secretariat, took place in 2017. The 2017 Review highlighted the CTCN’s responsiveness to developing country needs. Beneficiaries of CTCN services have shown a high level of satisfaction; they appreciate the CTCN’s intense groundwork, and its reactive and tailored assistance. The CTCN fostered synergies with financial institutions, such as the Adaptation Fund, the Global Environment Facility (GEF) and the Green Climate Fund (GCF), and technical partners to avoid redundancy and increase the leverage of its activities.15 Furthermore, the GCF invited the CTCN to provide views on the enhancement and strengthening of the institutional relationship.

As requested at COP 17, the UNFCCC commissioned an independent review of the effective implementation of the CTCN four years after its inception.16 COP 23 considered the findings of the review, including any recommendations regarding enhancing the performance of the CTCN, and invited UNEP, with the support of the CTCN and in consultation with its Advisory Board, to respond to the relevant findings and recommendation Subsidiary Body for Implementation at its forty-eighth session, taking into account Parties’ deliberations at COP 23.17

The DANIDA18 ‘Review of the Climate Technology Centre and Network (CTCN) Report’ (2018)19 described how a demand for CTCN technical assistance requests has been established that is beyond what it is able to fund and commented that yearly targets are not quite achieved. It concluded that “unless funds are increased significantly, it will be difficult for CTCN to function as the intended Global Mechanism, being effective in facilitating the transfer, uptake and scaling of climate technologies, and ensuring learning and impact.”

The COP further requested the UNFCCC secretariat to commission the second independent review of the CTCN and report on the findings of the review, including any recommendations regarding enhancing its performance for consideration by the COP in 2021.20 The second independent review of the CTCN (2021) concluded that there has been continuous improvement in its programmes of work, with most of the recommendations from the first independent review and guidance from the COP having been taken into consideration in the second programme of work. It observed how resource mobilization remains a challenge, as the expected diversification of financial resources was not fully meeting initial targets despite a recent increase in funding from the GCF and the Adaptation Fund. Donor reporting is a key vehicle to meet donors’ requirements for greater transparency, accountability, effectiveness, and efficiency concerning the use of their contributions.

[Note: An evaluation case study of the Climate Technology Centre and Network was requested by the European Commission in 2015.21 It was part of a larger evaluation effort by the UNEP Evaluation Office of two umbrella projects (12/3-P1 and 12/3-P2).]

The development of this 3rd Programme of Work is partly informed by the recommendations and lessons learned resulting from these independent reviews.

15 Following consideration by Parties of the findings of the independent review, including recommendations regarding enhancing the performance of the CTCN, the COP decided to renew the memorandum of understanding between the COP and the UNEP regarding the hosting of the CTCN for a further four-year period. Decision 14/CP.23, para. 5.
16 Decision 2/CP.17, annex VII, paragraph 20
17 Decision 14/CP.23, paragraph 7
18 Denmark’s Co-operation Division.
20 https://unfccc.int/documents/302658
2.5 CONSULTATIONS INFORMING THE 3RD PROGRAMME OF WORK

In drafting this Programme of Work the CTCN sought views from its core stakeholders both under and outside the Convention. The primary consultees are below:

2.5.1 Advisory Board
The CTCN Advisory Board led the development of this Programme of Work, meeting regularly as a Task Force, that included representation of the Chairs of the Technology Executive Committee.

2.5.2 Technology Executive Committee
In developing this Programme of Work, the CTCN established a Task Force that had representation of the Chair and Vice Chair of the TEC and the UNFCCC Secretariat. The intention was to build on the synergist elements and linkages between both bodies of the Technology Mechanism.

2.5.3 Non-Annex 1 NDEs and members of CTCN Network
Nine regional workshops for NDEs and CTC Network members were separately organised throughout May 2022 to gain guidance from NDEs, and network organisations as depicted in Table 1 and in Figure 5. During this process CTCN engaged 138 participants from 60 countries. This open, inclusive, and participatory engagement process is aligned to the CTCN mandate in directly responding to identified needs in a country driven approach. Figure 6 presents a synthesis of focus areas identified during these regional workshops that ascertained the views on the most important topics and challenges facing developing countries as they seek to access environmentally sound technologies.

Table 1: Consultative workshops for NDEs and Network members by region

<table>
<thead>
<tr>
<th>Dates</th>
<th>Regional workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 May</td>
<td>NDEs from Africa (FR)</td>
</tr>
<tr>
<td>19 May</td>
<td>NDEs from Africa (EN)</td>
</tr>
<tr>
<td>24 May</td>
<td>NDEs from Pacific</td>
</tr>
<tr>
<td>25 May</td>
<td>NDEs from Asia, NDEs from Latin America</td>
</tr>
<tr>
<td>26 May</td>
<td>NDEs from Caribbean</td>
</tr>
<tr>
<td>30 May</td>
<td>Network members from EU, US and Canada</td>
</tr>
<tr>
<td>31 May</td>
<td>Network members from Africa (EN)</td>
</tr>
<tr>
<td>1 June</td>
<td>Network members from Asia Pacific</td>
</tr>
<tr>
<td>7 June</td>
<td>Network members from LAC (SP)</td>
</tr>
</tbody>
</table>

Figure 5: Breakdown of consultees by Type of Stakeholders
2.5.4 Annex 1 NDEs
Meetings were convened with Annex 1 NDEs and Donor governments throughout May and June 2022 to provide input into the development of this Programme of Work.

2.5.5 Selected Countries and Major Groups
Meetings were also held with selected countries and major groups throughout May and June 2022. These included meetings with the Egyptian COP Presidency, European Union, Republic of Korea, United States, Africa Group of Negotiators, G77 and China, LDC Group and Alliance of Small Island States with the objective to seek guidance on the CTCN Programme of Work for the period 2023 to 2027.

2.5.6 Constituency groups
Several 1-1 consultations were held with constituency groups, including women and gender, indigenous peoples, youth, research and independent NGOs to gain input into the programme of work. Additional information on the CTCN’s gender policy and action plan is presented in Annex C.

2.5.7 Bodies under the Convention
The CTCN engaged with bodies under the Convention including financial entities such as the Green Climate Fund the Adaptation Fund and Standing Committee on Finance, as it prepared the contents of this programme of work.

Figure 7 presents a reflection on the diversity of the themes and challenges that were raised within the consultations outlined above.

Figure 7: Inputs from consultations from Annex 1 country NDEs, Constituency Groups and Bodies under Convention

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**Figure 6: Synthesis of workshops, most dominant themes (global)**

- Innovation, TNAs and NDC support (16)
- Private sector mobilization, Incubators (11)
- Food and Agriculture, Water (11)
- Risk, vulnerability, digitalization (10)
- Smart cities, mobility (9)
- Cross cutting, endogenous (7)
- Exchange of knowledge & experience (6)
- Nature (5), Circular economy & resource efficiency (5)
Figure 8 outlines the key collaborators while also highlighting where future influence should focus as the CTCN implements its Programme of Work 2023-2027.

**Figure 8: CTCN Collaborations:**
3 PRIORITY AREAS

3.1 INTRODUCING THE APPROACH TO DELIVERY

Integral to the CTCN’s 3rd Programme of Work is the continuation of the delivery of its mandate to respond to country-driven requests for services with a focus on building and strengthening developing country capacity to address technology challenges and opportunities for adaptation and mitigation.

The Climate Technology Centre and Network has benefited from the strategic and technical guidance provided by the Advisory Board, delivering on the mandate provided by the COP. This has enabled the CTCN to respond to the guidance and integrate findings from independent reviews into its annual operating plans and through its programme of work. This approach is framed on the left side of Figure 9 below.

Figure 9: Approach to deliver of the CTCN’s 3rd Programme of Work

Figure 9 presents the approach of the CTCN in the implementation of its 3rd Programme of Work. It involves maintaining the country and demand driven approach while also introducing 3 enablers to contribute to the achievement of 5 system transformations across mitigation and adaptation technologies. The CTCN through implementation will also promote participatory, inclusive approaches that ensure social and gender justice.

3.2 INTRODUCING ENABLERS & SYSTEM TRANSFORMATIONS

The 3rd Programme of Work has identified three enablers that it proposes to focus effort on to deliver its functions, allowing it to respond quickly to the needs of developing country parties and build the scale of its interventions.

The development of three enablers within this Programme of Work is in response to the COP calls for programmatic, multi-country, and transformational work, incorporating findings from independent reviews and in response to the intensive stakeholder engagement that has informed the development of this Programme of Work. This approach complements the country and demand-driven approach, increasing the efficiency and impact of CTCN interventions and investments.

The round of consultations also informed the development of this Programme of Work, specifically identifying the outcomes the CTCN’s stakeholders wish to achieve over this 5-year period. In determining how best to achieve these intended outcomes stakeholders identified 3 enablers (Innovation, Digitalisation and Collaboration) that can assist countries in terms of their NDC implementation. In addition to the 3 enablers, the regional consultations with the NDEs also identified five system transformational areas to complement CTCN’s demand driven delivery model.

There are 3 Enablers that deliver 5 system transformations as framed in Figure 10.
Figure 10: Introducing the CTCN’s Three enablers to Contribute to system wide transformation:

**Innovation** as an enabler for purposes of this work programme will be within the context of Article 10 of the Paris Agreement which provides that innovation will be done through collaborative approaches to climate technology research, development and demonstration (RD&D); the creation and promotion of relevant enabling policy to incentivize and nurture a supportive environment for innovation; and the active engagement of the private sector and closer collaboration between the public and private sector.

**Digitalisation** as an enabler in this Programme of Work will entail taking advantage of digital tools to accelerate and amplify impact across the 5 system transformation areas and bring more transparency to the climate governance and decision-making process. CTCN will also focus on Digital solutions which drive resilience in communities and promote Low Emissions Development Strategies. It will explore how digital technologies and circular design can bring significant potential in reductions in the global carbon footprint. In this regard, CTCN will focus on promoting access to Digital public goods that will enable the design of policies, that support climate risk assessments, planning for adaption and resilience at country level, promotion of low emission pathways and informing climate investment decisions.

**Collaboration** as an enabler for this programme of work will focus on enhancing engagement with the Technology Executive Committee, the Finance Mechanism of the UNFCCC, other bodies in the Convention and constituency groups and other stakeholders.

Figure 10 (bis) Alternative for Agreement:

**Innovation** as an enabler for purposes of this work programme will be within the context of Article 10 of the Paris Agreement which provides that innovation will be done through collaborative approaches to climate technology research, development and demonstration (RD&D); the creation and promotion of relevant enabling policy to incentivize and nurture a supportive environment for innovation; and the active engagement of the private sector and closer collaboration between the public and private sector.

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**Collaboration** as an enabler for this programme of work will focus on enhancing engagement with the Technology Executive Committee, the Finance Mechanism of the UNFCCC, other bodies in the Convention and constituency groups and other stakeholders.
**Figure 11: Examples of Technical Assistance linked to the Enablers to achieve systems transformation and placed in context of drivers for technology transfer**

<table>
<thead>
<tr>
<th>Enablers &amp; System Transformations</th>
<th>Examples of Technical Assistance, Capacity Building and Knowledge sharing activities</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Innovation</td>
<td>1. Water-Energy-Food Nexus</td>
<td>1. Countries have placed importance on the conservation, restoration, and enhancement of marine and terrestrial ecosystems as well as the area of food security given climate temperature impacts.</td>
</tr>
<tr>
<td>2. Digitalisation</td>
<td>2. Electro Mobility</td>
<td>2. Countries have identified strengthened support for interventions with transformational impact, responding to cross sectoral challenges that improve quality of life and provide equitable access to education and employment.</td>
</tr>
<tr>
<td>3. Collaboration</td>
<td>3. Building and Resilient Infrastructure 1.1 Sensor deployment to aid food and crop resilience 1.2: Improved water management, accounting, and productivity 1.3 Enhanced platforms and tools for collaboration and learning on agri-food technology development and transfer, supporting the development of national strategies 1.4. Using digital technologies for climate smart precision farming 2.1: Shared mobility regulation development 2.2: Deployment of low emissions vehicles 2.3 Using digital technologies and data to enhance urban transport and buildings 3.1: City assessment to encourage energy system resilience 3.2 Drafting a country building resilience standard 3.3 Early warning systems 3.4 Nature based solutions 3.5 Using digital technologies to support off grid energy systems and support nature-based solutions 4.1 Energy efficiency for industry applications, certification 4.2: Countries assisted in developing national institutional, legal and regulatory frameworks in support of TNAs, TAPs, NDCs, and NAPs 4.3: Investigation of emerging technology, policy, demographics, and economics reshaping the landscape of energy supply and demand. 4.4 Decarbonization initiatives investigating technology options, energy flows, materials flows, life-cycle emissions, costs, policies 5.1: Decarbonization initiatives for carbon intensive business and industry, optimizing materials flow and reducing life-cycle emissions, costs, policies 5.2 Active partnerships facilitated by CTCN and TEC collaboration that provides match making services (between scientific community, private sector, and financial institutions) through regional forum to assist beneficiaries on new and innovative technologies/solutions/business models 5.3: Capacity building to develop Youth-entrepreneurship initiatives, and support frameworks, policies, and programmes for early-stage innovation</td>
<td>3. Countries have requested support to respond to chronic and transitional risk to infrastructure resulting from climate change impacts.</td>
</tr>
<tr>
<td>4. Energy systems</td>
<td></td>
<td>4. Countries recognise that new and innovative instruments are required to accelerate the transition and align with ambition of NDCs, TNAs, TAPs, and NAPs implementation.</td>
</tr>
<tr>
<td>5. Business and Industry</td>
<td></td>
<td>5. Countries have requested support such as information-sharing, collaboration and networking in order to exchange best practices, experience and knowledge on technology development and transfer and on endogenous capacity building activities. Such collaboration could involve cross-cutting themes of gender, youth and indigenous people.</td>
</tr>
</tbody>
</table>
### 3.3 Detailed Programme of Work

Table 2 presents the detailed CTCN Programme of Work 2023-2027, aligned to the Technology Framework focussed areas of action and the CTCN mandate.

#### Table 2: Programme of Work Framework

<table>
<thead>
<tr>
<th>Technology Framework Theme</th>
<th>Mandate/ Service Area</th>
<th>Actions &amp; Activities</th>
<th>Anticipated Outcome(s)</th>
<th>Key Performance Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation</td>
<td>Technical Assistance (Managing requests and responses in the technology cycle) elements of TA should be elaborated separately &amp; appropriately applied in table 2 &amp; 3.3</td>
<td>1.1 Support policies institutional and regulatory frameworks and planning processes on innovation and strengthening National Systems of Innovation (NSI)*</td>
<td>1. Countries can accelerate innovation at different stages of the technology cycle through collaborative approaches.</td>
<td># Policies, strategies, plans, laws, agreements or regulations proposed, adopted, or implemented under TA</td>
</tr>
<tr>
<td></td>
<td>Technical Assistance (entails among others: Feasibility assessment; ranking of alternatives; design of projects; collaborative engagement; implementation plan</td>
<td>1.2 Develop technological transition pathways and options for uptake of climate technologies</td>
<td>2. Countries have clear pathways and options to enhance technology development and transfer</td>
<td># TAs completed</td>
</tr>
<tr>
<td></td>
<td>Capacity building (Strengthening networks, partnerships and capacity building)</td>
<td>1.3 Promote collaboration and partnerships in climate technology RD&amp;D activities. Incorporate gender, youth and indigenous peoples’ considerations into decision making, especially within the NDC processes and through engagement with NDEs</td>
<td></td>
<td># Network events</td>
</tr>
<tr>
<td></td>
<td>Implementation</td>
<td>Foster design &amp; implementation of feasible projects &amp; project ideas.</td>
<td>2.1 Prioritize climate technologies and facilitate the development, implementation of NDCs, TNAs, roadmaps and pilot studies and alignment with NAPs</td>
<td># Events and trainings co-organized with entities of Financial Mechanism</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Catalyse; accelerate; upscale implementation of adaptation &amp; Mitigation actions on the ground</td>
<td></td>
<td># Technology proposals developed through CTCN TA supported by entities of the Financial Mechanism</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Foster scaling up of implementation of supported climate projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge Management (Fostering collaboration to accelerate technology transfer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge Management</td>
<td>2.2 Identity and develop recommendations on approaches, tools and means, for the assessment of technologies at national level</td>
<td>Assessments and implementation of transformative technologies through joint and collaborative arrangements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td># Information resources, national plans, contributing to national processes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration &amp; Stakeholder engagement</td>
<td>Involve stakeholders in identification, development &amp; implementation including matchmaking and broad-based support</td>
<td>3.1 Design policies, regulations and standards that create enabling environments for climate technologies and deliver capacity-building</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td># Knowledge resources developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge Management</td>
<td>3.2 Enhance the capacity of the NDEs to plan, monitor and achieve technological transformation</td>
<td>3. Stakeholders are actively engaged and have strengthened capacity to implement climate action through collaboration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td># Active partnerships established</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity building for ultimate implementation</td>
<td>1.3 Promote collaboration and partnerships in climate technology RD&amp;D activities. Incorporate gender, youth and indigenous peoples’ considerations into decision making, especially within the NDC processes and through engagement with NDEs</td>
<td># Participants engaged via webinars (gender disaggregated)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td># Specific action plans developed and implemented</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enabling environment and capacity building</td>
<td>Technical Assistance to ensure ultimate implementation</td>
<td>1.1 Support policies institutional and regulatory frameworks and planning processes on innovation and strengthening National Systems of Innovation (NSI)*</td>
<td>4. Countries have enhanced enabling environments, including policy and regulatory environments to develop, transfer and deploy climate technologies.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td># Policies, strategies, plans, laws, agreements or regulations proposed, adopted, or implemented as a result of the TA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge Management</td>
<td>4.1 Strengthen stakeholder engagement in an inclusive manner and facilitate collaboration among relevant international organizations, the private sector, academia, and civil society</td>
<td># Private sector collaborations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td># Citizen(s) led, community-based initiatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support</td>
<td>Capacity building for ultimate implementation</td>
<td>5.1 Facilitate access to Financial Mechanism of the UNFCCC and mobilize various types of support including pro-bono and in-kind support</td>
<td># Capacity Building and Training Workshops (eg. TNAs, TAPs, topics informed by TEMs) for public, non-government and private sector</td>
<td></td>
</tr>
</tbody>
</table>

* The TEC describe a NSI as ‘a network of actors, institutional contexts and linkages that underlie national technological change’ ([https://unfccc.int/ttclear/misc_/StateFiles/gwwork_state/TEC_documents/5be1bf880cc34d52a431520b5d54a711b66d61580f741a4be7839a5a00c64a879.pdf](https://unfccc.int/ttclear/misc_/StateFiles/gwwork_state/TEC_documents/5be1bf880cc34d52a431520b5d54a711b66d61580f741a4be7839a5a00c64a879.pdf)). It has also been described as ‘a means by which a country seeks to create, acquire, diffuse and put into practice new knowledge that will help that country and its people achieve their individual and collective goals’. ([https://www.researchgate.net/publication/262749704_The_national_system_of_innovation_concept_An_ontological_review_and_critique](https://www.researchgate.net/publication/262749704_The_national_system_of_innovation_concept_An_ontological_review_and_critique))
4 MONITORING, REPORTING & EVALUATION

4.1 RESULTS BASED MANAGEMENT

The monitoring and reporting of CTCN Technical Assistance to developing countries is carried out through a result-based framework that was approved by the 6th Advisory Board Meeting. The programme of work’s monitoring and reporting consists of the following:

1. The Performance Measurement Framework is the key internal management tool used by the CTCN to collect, analyse, and report on the performance data that forms the basis for monitoring and evaluation functions. The Performance Measurement Framework presents specific budgeted activities, outputs, outcomes, and intended outcomes, and includes indicators from all CTCN service areas to be reported on by CTCN Secretariat and technical assistance implementers.

2. The key performance indicators for this programme of work measurement are identified in Section 3.3. This approach is aimed at achieving impact and scale of CTCN from 2023-2027. Impact indicators are identified in Section 3.4 with intended outcomes in Section 4.5.

3. This programme of work’s Theory of Change (Section 4.6) is guided by the COP decisions that informed CTCN’s mandate, the Technology Framework and CTCN Programme of Work. It provides a strategic overview of the CTCN activities and illustrates the main anticipated outputs, outcomes and impacts to be achieved by the CTCN over the life of this programme.

4. The resource allocation and financial plan is presented in Section 5.
### Timing of CTCN Interventions to Build Scale & Impact

#### Table 3: Interventions by Year

<table>
<thead>
<tr>
<th>Tech Framework</th>
<th>Activities</th>
<th>Indicators</th>
<th>Yr 1</th>
<th>Yr2</th>
<th>Yr5</th>
<th>Means of Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation</td>
<td>1.1 Support policies institutional and regulatory frameworks and planning processes on innovation and strengthening National Systems of Innovation (NSI)</td>
<td># Policies, strategies, plans, laws, agreements, or regulations proposed, adopted, or implemented as a result of the TA</td>
<td>10</td>
<td>12</td>
<td>60</td>
<td>- Program evaluation reports to the Advisory Board/COP</td>
</tr>
<tr>
<td>Innovation</td>
<td>1.2 Develop technological transition pathways and options for uptake of climate technologies</td>
<td># TAs initiated or completed</td>
<td>30</td>
<td>35</td>
<td>150</td>
<td>Web-statistics of the CTCN information portal</td>
</tr>
<tr>
<td>Innovation</td>
<td>1.3 Promote collaboration and partnerships in climate technology RD&amp;D activities</td>
<td># Network events organized</td>
<td>10</td>
<td>12</td>
<td>75</td>
<td>-</td>
</tr>
<tr>
<td>Innovation</td>
<td></td>
<td># Participants in climate technology RD&amp;D related events (gender disaggregated)</td>
<td>100</td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Innovation</td>
<td>2.1. Prioritize climate technologies and facilitate the development, implementation of NDCs, TNAs, roadmaps and pilot studies and alignment with NAPs</td>
<td># Events and trainings co-organized with entities of Financial Mechanism</td>
<td>3</td>
<td>6</td>
<td>30</td>
<td>Programme evaluation</td>
</tr>
<tr>
<td>Innovation</td>
<td></td>
<td># Technology proposals (contributing to NDCs, TNAs, roadmaps) developed through CTCN TA supported</td>
<td>5</td>
<td></td>
<td>25</td>
<td>Aggregated results from thematic and national reviews</td>
</tr>
<tr>
<td>Innovation</td>
<td></td>
<td># Assessments and implementation of transformative technologies through joint and collaborative arrangements</td>
<td>0</td>
<td>5</td>
<td>25</td>
<td>Stakeholder engagement feedback</td>
</tr>
<tr>
<td>Innovation</td>
<td></td>
<td># Information resources, national plans developed</td>
<td>127</td>
<td>200</td>
<td>1000</td>
<td>Web-statistics of the CTCN information portal</td>
</tr>
<tr>
<td>Implementation</td>
<td>2.2 Identity and develop recommendations on approaches, tools and means, for the assessment of technologies at national level</td>
<td># Assessments and implementation of transformative technologies through joint and collaborative arrangements</td>
<td>0</td>
<td>5</td>
<td>25</td>
<td>Aggregated results from workshops</td>
</tr>
<tr>
<td>Collaboration</td>
<td>3.1 Design policies, regulations and standards that create enabling environments for climate technologies and deliver capacity-building</td>
<td># Knowledge (policies, regulations and standards) resources developed</td>
<td>40</td>
<td>40</td>
<td>200</td>
<td>- Regular reports to the Advisory Boards and the COP</td>
</tr>
<tr>
<td>Collaboration</td>
<td>3.2 Enhance the capacity of the NDEs to plan, monitor and achieve technological transformation</td>
<td># NDEs engaged in TA</td>
<td>35</td>
<td>40</td>
<td>200</td>
<td>Aggregated results from workshops</td>
</tr>
<tr>
<td>Collaboration</td>
<td></td>
<td># Active partnerships established</td>
<td>55</td>
<td></td>
<td></td>
<td>reflecting # attendees, gender and youth disaggregation, agendas, minutes</td>
</tr>
<tr>
<td>Collaboration</td>
<td>1.3 Promote collaboration and partnerships in climate technology RD&amp;D activities</td>
<td># Participants engaged via webinars (gender disaggregated)</td>
<td>200</td>
<td>300</td>
<td>1000</td>
<td>- Web-statistics of the CTCN information portal</td>
</tr>
<tr>
<td>Enabling</td>
<td>1.1 Support policies institutional and regulatory frameworks and planning processes on innovation and strengthening National Systems of Innovation (NSI)</td>
<td># Policies, strategies, plans, laws, agreements, or regulations proposed, adopted, or implemented as a result of the TA</td>
<td>10</td>
<td>12</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>Enabling</td>
<td>4.1 Strengthen stakeholder engagement in an inclusive manner and facilitate collaboration among relevant international organizations, the private sector, academia, and civil society</td>
<td># Private sector collaborations</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Enabling</td>
<td></td>
<td># Citizen(s) led, community-based initiatives</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Support</td>
<td>5.1 Facilitate access to Financial Mechanism of the UNFCCC and mobilize various types of support including pro-bono and in-kind support</td>
<td># Capacity Building and Training Workshops (eg. TNAs, TAPs, topics informed by TEMs) for public, non-government and private sector</td>
<td>3</td>
<td>6</td>
<td>30</td>
<td>-</td>
</tr>
</tbody>
</table>
4.3 Impact Indicators

The following impacts are directly experienced by developing counties as primary recipients of CTCN services:

Figure 11: Impacts resulting from the Programme of Work

| Outputs |
|------------------|------------------|------------------|------------------|------------------|
| Clear pathways and options to implement mitigation and adaptation action using planning tools and processes such as NDC/NAP, LEDS, TNA, TRM etc. | Enabling environments for climate technologies created through support for development of policies, strategies, standards, and capacity building. | Enhanced technical capacity of stakeholders including the NDEs on tools, approaches, and methodologies for climate action. | Relevant enabling policy environment is created to incentivize and nurture innovation. | Increased access to various types of resources to support technology development and transfer considering gender-responsive, endogenous and indigenous aspects. |
4.4 INTENDED OUTCOMES

The outcomes identified below aim to align this Programme of Work with the broad guidance and decisions of the COP and the CMA while also reflecting the priorities of NDEs as expressed in the regional consultations. They will be achieved by collaboration with a network of climate technology service providers and other stakeholders including youth and indigenous people.

Figure 12: Intended Outcomes

<table>
<thead>
<tr>
<th>Intended Outcome</th>
<th>How (In responding to requests from Parties)</th>
<th>Alignment with the Technology Framework action areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Countries can accelerate innovation at different stages of the technology cycle through collaborative approaches.</td>
<td>Facilitate the development, transfer and deploy of new and existing climate (mitigation and adaptation) technologies to developing country Parties. This will enable countries to effectively implement their development plans and NDCs.</td>
<td></td>
</tr>
<tr>
<td>2 Countries have clear pathways and options to enhance technology development and transfer</td>
<td>Facilitate stakeholder collaboration and aid their preparation and implementation of technology projects and strategies, enabling developing country Parties to have a clear pathway with identified support options to enhance technology development and transfer</td>
<td></td>
</tr>
<tr>
<td>3 Countries have enhanced enabling environments, including policy and regulatory environments to develop, transfer and deploy climate technologies.</td>
<td>Build stakeholder capacity and enhance institutional and legal frameworks to develop, transfer and deploy climate technologies.</td>
<td></td>
</tr>
<tr>
<td>4 Stakeholders are actively engaged and have strengthened capacity to implement climate action through collaboration</td>
<td>Through stakeholder collaboration, in promoting gender-responsive climate technology development and transfer, this programme identifies financial and technical resources to support the development, transfer and deployment of climate technologies and mobilizes private sector engagement.</td>
<td></td>
</tr>
<tr>
<td>5 Countries have access to Technical Assistance and financial support to enhance development and transfer of gender responsive technologies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.5 THEORY OF CHANGE

Figure 13 under this 3rd Programme of Work frames the CTCN’s approach through a theory of change model.

Figure 13: Outputs expressed through Theory of Change
4.6 COST EFFECTIVENESS

- The Independent Reviews of the CTCN have highlighted its responsiveness to developing country needs.
- Beneficiaries of CTCN services have shown a high level of satisfaction; they appreciate the CTCN’s intense groundwork, and its reactive and tailored assistance some of which have attracted investment directly and indirectly.
- The CTCN is creating synergies with financial institutions, such as the Adaptation Fund, the Global Environment Facility (GEF) and the Green Climate Fund (GCF), and technical partners to avoid redundancy and increase the leverage of its activities. Working relationships with the Financial Mechanism (e.g., the Green Climate Fund (GCF) and the Global Environment Facility (GEF)) have been developed to identify opportunities for complementary support and allow for deeper and more sustained operations of the CTCN for the benefit of developing countries.
- At TEC 24 and CTCN 19 Joint Session\(^{22}\) both bodies committed to ‘continue to identify common issues and opportunities for joint work, for example on areas highlighted in the findings from existing joint work (e.g. on technology and NDCs). Another example was on endogenous capacities and technologies, where needs, gaps and challenges, identified from feedback from NDEs, could inform the implementation support provided by the CTCN. The TEC and CTCN consider it important to continue improving the feedback mechanism between the two bodies: TEC policy work could, among other sources of information, be more systematically grounded in case studies and lessons learned from the operational activities of the CTCN and vice versa’.
- This programme of work will be flexible enough to take on board necessary addenda that may be deemed necessary by stakeholders including guidance that will come from the COP and CMA in the period; with the objective of adding value to the performance of the CTCN and enhancement of the work of the technology mechanism in supporting developing countries.

4.7 GOVERNANCE

The CTCN’s overall governance and direction is provided by the UNFCCC Conference of Parties through the Advisory Board.

The Advisory Board of the CTCN determines its operational modalities and rules of procedure based on the functions outlined in decision 1/CP.16, paragraph 123. The Constitution of the Advisory Board was agreed and amended at COP 26.

UNEP role, as hosts, is to provide institutional guidance, leadership and enhanced synergies between the programme and other initiatives across climate change within UNEP and other partners.

The CTCN Advisory Board has 30 members meeting every six months for 2-3 days and guides the CTCN, approves procedures and the annual operating plans including annual budgets, endorses financial statements, and monitors CTCN activities and results.

\(^{22}\)https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/tt_meetings/d38a60a3f0b4c42ae0566b5ff6ecfba/5d3d6d15f2a45b0881d3a3b39482f3f.pdf
## 5 Resource Allocation & Financial Plan

**Table 4:** CTCN Budget (draft indicative 5-year cycle) by Technology Framework Action Area and CTCN Services (Colour coded)

<table>
<thead>
<tr>
<th>Outcomes and Activities</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>SubTotal</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Innovation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Countries can accelerate innovation at different stages of the technology cycle through collaborative approaches.</td>
<td>1.1 Support policies institutional and regulatory frameworks and planning processes on innovation and strengthening National Systems of Innovation (NSI)</td>
<td>$750</td>
<td>$750</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,250</td>
<td>$4,750</td>
</tr>
<tr>
<td></td>
<td>1.2 Develop technological transition pathways and options for uptake of climate technologies</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$5,000</td>
</tr>
<tr>
<td></td>
<td>1.3 Promote collaboration and partnerships in climate technology RD&amp;D activities</td>
<td>$250</td>
<td>$250</td>
<td>$350</td>
<td>$450</td>
<td>$500</td>
<td>$1,800</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Countries have clear pathways and options to enhance technology development and transfer</td>
<td>2.1 Prioritize climate technologies and facilitate the development, implementation of NDCs, TNAs, roadmaps and pilot studies and alignment with NAPs</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$1,750</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$8,750</td>
</tr>
<tr>
<td></td>
<td>2.2 Identity and develop recommendations on approaches, tools and means, for the assessment of technologies at national level</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,250</td>
<td>$1,250</td>
<td>$1,500</td>
<td>$6,000</td>
</tr>
<tr>
<td><strong>Collaboration and stakeholder engagement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stakeholders are actively engaged and have strengthened capacity to implement climate action through collaboration</td>
<td>3.1 Design policies, regulations and standards that create enabling environments for climate technologies and deliver capacity building</td>
<td>$300</td>
<td>$500</td>
<td>$750</td>
<td>$750</td>
<td>$750</td>
<td>$3,050</td>
</tr>
<tr>
<td></td>
<td>3.2 Enhance the capacity of the NDEs to plan, monitor and achieve</td>
<td>$300</td>
<td>$500</td>
<td>$500</td>
<td>$500</td>
<td>$500</td>
<td>$2,300</td>
</tr>
<tr>
<td>Enabling environment and Capacity Building</td>
<td>Support</td>
<td>technological transformation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------</td>
<td>-----------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Countries have enhanced enabling environments, including policy and regulatory environments to develop, transfer and deploy climate technologies.</td>
<td>1.1 Support policies institutional and regulatory frameworks and planning processes on innovation and strengthening National Systems of Innovation (NSI)</td>
<td>$350 $500 $750 $750 $1,000 $3,350</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.1 Strengthen stakeholder engagement in an inclusive manner and facilitate collaboration among relevant international organizations, the private sector, academia, and civil society</td>
<td>$220 $220 $250 $250 $250 $1,190</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.1 Facilitate access to Financial Mechanism of the UNFCCC and mobilize various types of support including pro-bono and in-kind support</td>
<td>$490 $500 $750 $750 $1,000 $3,490</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity Budget Total</td>
<td>Activity Budget Total</td>
<td>$6,360 $7,020 $8,850 $9,200 $10,250 $41,680 $41,680</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTCN Operational Costs</td>
<td>CTCN Operational Costs</td>
<td>Operations and Advisory Board</td>
<td>$2,500 $2,500 $2,500 $2,500 $2,500 $12,500 $12,500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Outcome Budget</td>
<td>Total Outcome Budget</td>
<td>$8,860 $9,520 $11,350 $11,700 $12,750 $54,180 $54,180</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programme Support Cost</td>
<td>Programme Support Cost</td>
<td>PSC (13%)</td>
<td>$1,152 $1,238 $1,476 $1,521 $1,658 $7,043 $7,043</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>Grand Total</td>
<td>$10,012 $10,758 $12,826 $13,221 $14,408 $61,223 $61,223</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANNEXES
ANNEX A. COP DECISIONS & GUIDANCE INFORMING CTCN ACTIVITIES

a) COP 17 (2011) adopted the terms of reference of the CTCN, which provide guiding principles with regard to its mission, governance and organizational structure.

b) COP 18 (2012) selected UNEP, the leader of the consortium of partner institutions, as the host of the CTCN for an initial term of five years, with possible renewal if so decided by COP 23 (November 2017). A memorandum of understanding, adopted by COP 18 and signed by UNEP, formalized the roles and functions of the COP, UNEP, the CTCN as well as the financial arrangement for hosting the CTCN.

c) COP 19 (2013) adopted the modalities and procedures of the CTCN, thereby establishing the CTCN, hosted by the United Environment Programme (UNEP). This effectively allowed the CTCN to start its work and make it operational.

d) COP 21 (2015) underlined the need for the Technology Executive Committee, the Climate Technology Centre and Network and the operating entities of the Financial Mechanism to enhance cooperation and collaboration with a view to enhancing the fulfilment and implementation of their respective mandates effectively.

e) Every year, the COP and CMA provide guidance to the CTCN as deemed necessary.

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23 Annex I, 1.1(f) of 25/CP.19
24 Decision 13/CP.21
ANNEX B. SUSTAINABILITY

- There are several critical factors which the programme of work needs to bring about to ensure long term sustainability of the CTCN interventions.

- To achieve success, the CTCN must continue to work collaboratively with stakeholders in the delivery of the Programme of Work and secure/ensure that the financial and technical parameters are in place.

- NDEs will be critical to sustain a vastly improved enabling environment which will facilitate the upscaling and broad-based engagement of private sector. This enabling environment is not only to support local actors, but it will also ensure that building the capacity of countries is fundamental to the Programme of Work. The support for capacity building and establishing the delivery mechanism of capacity building is also vital for securing long term sustainability. Many NDEs may require additional technical support to enable them to deliver on these services. This will aid in accelerating the deployment and transfer of technologies both in terms of hardware as well as soft knowledge/orgware.

- Engagement, through the network of organisations associated with the CTCN, will deliver on the objective of creating a pool of technical (regionally based) experts that will also facilitate the building and development of technical assistance experience, capacity building and testing of business models. It also supports an open and transparent absorption of environmentally sound and innovative technologies, enabling the recipient countries to make appropriate development choices based on its own needs and strategic approach. It is expected that after receiving appropriate technical and financial training, the demonstration technologies will be up scaled and/or replicated after project completion.

- Furthermore, the CTCN maps the national and regional planning approaches, laws, programs, financing mechanisms and institutional set-ups and make this mapping available to other countries through knowledge management, training workshops and on-line information exchange platforms. The increased participation and accountability of multiple stakeholders (e.g. the private sector, local communities, Non-Government Organizations) in actions, decision-making and monitoring will ensure sustainability. The interventions under this project will help build a case for sustained government investment.
ANNEX C. GENDER ANALYSIS

- The CTCN delivered a gender policy and action plan (2019-2022) that follows its mission (Decision 2/CP17) to facilitate the preparation and implementation of technology projects and strategies taking into account gender considerations to support action on mitigation and adaptation.

- The CTCN host and the main Centre increasingly acknowledge the important linkages between gender and climate and have applied this across the full range of CTCN activities including technical assistance, capacity building, networking, communication knowledge sharing and monitoring and evaluation.

- The gender policy and action plan were developed in collaboration with international gender experts and the UNFCCC Women and Gender constituency. Its objectives include mainstreaming gender equality principles into CTCN operations, technical assistance, capacity building to ensure that specific needs and capabilities of both men and women with respect to climate technology are addressed. The intent is to reduce the gender gap in climate change- exacerbated social, economic, and environmental vulnerabilities.

- A key measurement is to increase women’s and men’s access to knowledge, training and income and achieve equal participation in technology related decision making, strengthening gender mainstreaming.

- A review of this policy will occur every 2 years.
Annex D. Network Engagement Strategy

1. Goals and objectives
The Network Engagement Strategy was created as a result of the recommendations by the Advisory Board taskforce in 2021 as well as the Second Independent Audit Review to ‘further engage with and improve synergies among Network members in order to take full advantage of its members’ valuable sectoral and geographical expertise, allowing for more efficient delivery of its services.’ In addition, this strategy aims to enhance the engagement of technology providers within the CTCN and strengthen partnerships with existing centres, networks, and institutions. In response to the mandates from COP26, the CTCN will enhance its provision of services to Network members with a view to reinforcing its position as a climate technology ‘matchmaker’. The strategies and initiatives suggested here would serve as a basis for the development of the third Programme of Work and resource mobilization and partnership strategies for the coming years.

2. Network Overview
Since 2013, the Network has grown to 730 members in 99 countries composed of various actors from the private sector (52%), academia, and research institutions (19%), followed by non-governmental institutions (10%). Fifty-four percent of network members come from non-Annex 1 country Parties, compared to 46% from Annex 1 country Parties. Their largest sectoral areas of expertise include the following: renewable energy, energy efficiency, water, industry, infrastructure and urban planning, waste management, and early warning and environmental assessment.

In the past, the CTCN defined its level of Network engagement by the number of Network members participating in three core service areas, technical assistance, knowledge sharing, and capacity building. The key indicators were the number of Network members who implemented technical assistance, and who participated in events, webinars, training, and workshops.

As of 2021, around Network members are involved in 58% of Technical Assistance projects as implementers, 32 members organized webinars with us, and 189 members participated in our regional events. The numbers are increasing; however, there is still much more to be done to fully garner the potential of the Network. As CTCN develops its third program of work (PoW) over the next five years, from 2023 to 2027, CTCN is transitioning from a stage where the CTCN focused on the ‘creation and expansion of Network’ to ‘collaboration and cocreation among Network’. In reflection of this strategic direction, the CTCN extends the definition of ‘engagement’ to include the number of outputs (e.g., project concept notes, webinars, publications) co-created by leveraging the expertise of the Network. Against this backdrop, this strategy aims to increase the engagement rate up to 40% by 2023 and targets Network members who have no engagement experience with us thus far to provide them the benefits of global visibility on their solutions or expertise and direct them to where it could be most useful in developing countries.

25 The detailed action plan and the definitions of indicators will be determined once the Programme of Work(2023-2027) is finalized.
3. Analysis

The Network is composed of diverse stakeholders each of them serving key roles in facilitating the development, deployment, and transfer of technology to developing countries. The Private sector (52%) and Research & academic institutions (19%), non-governmental organizations (10%) compose the major groups in our Network.

Designing effective strategies requires in depth understanding on different motivations of joining the Network from each type of Network members and observations on the past engagement patterns. According to the Network survey conducted in 2019, survey results showed that the biggest reason for the private sector to join the Network was ‘Applying for CTCN projects’ whereas non-profit partnerships/coalitions ranked their first motivation as ‘Learning from and exchanging knowledge with other Network members’. More specifically organizations identifying themselves as consultancy (50%) and industry association (50%) showed the highest participation in TAs, followed by NGO/voluntary organization (31%) and research organization/academic institution (23%). On the other hand, research /academic institutions were interested in more funding and business opportunities to pilot and localize their research results. In the case of NGOs, they actively participated and were interested in capacity-building and knowledge-sharing activities such as regional forums, webinars, and climate technology resources. The survey also affirmed the common interests and expectations from all respondents on more opportunities to connect with other Network members (e.g., What their expertise and experiences are).

4. Network Engagement Strategy

To strengthen the engagement of the Network, the CTCN lays out four strategies targeting different groups of Network members based on the analysis of their engagement patterns and needs:

- improve the online platform for matchmaking for general members
- work with the private sector (Public-private partnerships) to play a catalytic role for early-stage innovations and to ideate project concepts through workshops
- work with academia and research institutions to develop knowledge materials related climate technologies
- work with civil society and NGOs in delivering capacity-building activities and responding to the needs of the most vulnerable groups to climate change.

4.1 Engagement with General Members

The CTCN online platform (www.ctc-n.org) is crucial to connecting Network members dispersed around the globe. The online platform should be designed to clearly communicate the expertise, experience, and resources each Network member possesses, as well as skills and expertise they would like to obtain from others. Through this platform, Network members should find, connect, and advance their project ideas effectively. And with this increased traffic of Network members, the online platform (equipped with a machine learning algorithm in the future) should be able to monitor the global, regional, and sectoral trends of their demands. Below are proposed ideas to engage the Network members more generally.

- creating a web page (or a LinkedIn group) on our site for Network members to post their news and interact with others (They may be seeking partners, but also funding, technology or skills and knowledge.)
- updating our site as a platform that matches needs with solutions and solution providers, similar to the site developed by CTCN Consortium Partner, UNEP-DHI based upon previous CTCN/UNEP-DHI collaboration: https://www.matchwatersolutions.com/
- Improving the search function and database of the Network to enable better search modes that single out expertise and project experiences

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• updating the pool for consortium members (high-quality network members) with clear benefits so that can actively participate

4.2 Engagement with Private sector Network members
The CTCN intends to work extensively with the private sector including technical service providers, project consulting firms, and MSMEs, as well as financial intermediaries. Firstly, it is important to note that the extent and types of private sector actors vary by country and socioeconomic level. Reflecting the heterogeneity of the private sector, the CTCN plans to engage with a broad range of actors which include, but are not limited to:
- Large corporates with a need to decarbonize their industry, product, and services
- Investment firms with a fund to support innovative climate technologies and climate business
- SMEs and start-ups with a technical solution/service/product to mitigate and adapt to climate change
- local entrepreneurs (ex. smallholder farmers, fishermen etc) with needs to access technical knowledge and/or large-scale funds

The CTCN can contribute to providing matchmaking services, promoting their solutions in global events as well as providing networking events with potential partners. Also, the CTCN can support early-stage innovations partnering with philanthropic organizations or VCs. Below are proposed ideas to engage the private sector.

• developing an advisory service for private sector network members who are interested in matchmaking or entering into new markets. As one means of providing this service, the CTCN can identify, regional and national start up hubs or accelerator programs (ex. Food Bio Cluster in Denmark) with whom to partner

• organizing demo days alongside regional climate weeks and COPs which enable Network members to highlight their technologies or services

• organizing Networking events for members to connect with global experts, regional and global investors, NDEs, or local partners

• organizing global innovation event engaging philanthropic organizations, MDB Venture funds, and VCs(regional, national) to support pre-seed, and seed investments for early-stage innovations (ex. MIT SOLVE challenge)

• connecting Network members to a big private sector-led initiative to crowd in private capital and create an example of co-financing (ex. Orsted, IKEA, AIM4Climate, OS-Climate etc)

4.3 Engagement with Academia and research institutions
The role of academic and research institutions is important in attracting the private sector as they can provide science-based analysis on the impact potential of climate technologies and related risks. In addition, the CTCN plans to interact with local academia and research institutions who are key actors in strengthening National Systems of Innovation (NSI). Below are proposed ideas to engage academia and research institutions.

• organizing a thematic knowledge-sharing event with academic and research institutions (ex. a joint thematic webinar series with the LUCCC, academic associations, or individual universities)

• developing a joint technology pilot program with world-class universities in developing countries to pilot innovative technologies (ex. Joint Climate Innovation Lab with MIT JFWS & University of Ethiopia, Circular Economy Hub)

• exploring collaboration with universities on research examining themes and questions which are of interest to the CTCN or engaging the academic community in using information and data gathered by the CTCN in analyses that lead to academic journal papers or joint reports.(ex. Oxford University)

• exploring further partnership or collaboration with universities in developing countries to develop knowledge exchange, platforms, or publications, such as with the Least Developed Countries Universities Consortium on Climate Change. (LUCCC).

4.4 Engagement with Civil Society (Including members representing, Indigenous Peoples, Women, and Youth)
The CTCN adopts the spirit of inclusiveness and equality for youth, women, and indigenous people in delivering our services. Likewise, the CTCN plans to engage with Network members from civil society to ensure their voices are heard and technical solutions are designed to meet their needs. The CTCN will consult with UNFCCC Constituted Bodies of Youth, Indigenous People, and Women to engage relevant groups. Below are proposed ideas to engage civil society.

• organizing a mentoring program where young people can intern (in-person or online) with interested Network members.

• developing a Technical Assistance idea with a crowdsourcing concept where citizens can be the driving force of a project

• continuing to partner with UNFCCC constituency groups on events organized for large international fora or on smaller in-person and virtual events

• deepening our engagement during the third PoW with indigenous people through all CTCN service area