



**Technology Executive Committee**

24 August 2022

**Twenty-fifth meeting**

**In-person meeting, 6–8 September and 9 September 2022 (TEC-CTCN Joint session)**

**Draft workplan of the Technology Executive Committee for 2023–2027**

**Cover note**

**I. Introduction**

**A. Background**

1. The Technology Executive Committee (TEC) is the policy arm of the Technology Mechanism established by the COP at COP16 in Cancun in 2010 to facilitate the implementation of actions for achieving the objective to support action on mitigation and adaptation in order to achieve the full implementation of the Convention.

2. At this COP, Parties decided on the functions of the TEC, the mandate to facilitate the effective implementation of the Technology Mechanism, to further implement the technology transfer framework established under the Convention,<sup>1</sup> the consideration of priority areas, and the promotion of coherence and synergy within the Technology Mechanism.<sup>2</sup>

3. In executing these functions and mandates the TEC agrees on activities for certain duration, captured in a rolling workplan. Since its inception, the TEC has developed and fully completed three rolling workplans: 2012–2013, 2014–2015, and 2016–2018. The TEC is currently implementing its rolling workplan for 2019–2022.<sup>3</sup>

4. At its twenty-fourth meeting (TEC24) in April 2022, the TEC initiated consideration of a new rolling workplan for the next period. Suggestions were made by members, including on possible focus areas of work, format and the option to expand the period of the workplan to cover five years to align with the next CTCN programme of work.

5. Further, members discussed the COP26 guidance<sup>4</sup> regarding the development of a joint work programme for the Technology Mechanism to enhance the coherence and synergy of the work under the Technology Mechanism. A consolidated work programme document would show how activities, whether conducted separately or jointly by the two bodies, address common themes and would include separate sections for each body.

6. The TEC agreed to establish an *ad hoc* task force to take forward the preparation of the new TEC rolling workplan taking into account the suggestions by members made at TEC24. Under the leadership of the Chair and the Vice Chair of the TEC, the *ad hoc* taskforce would also liaise closely and coordinate with the joint TEC–CTCN task force. The TEC requested the *ad hoc* task force to present a draft rolling workplan for consideration at TEC 25.

7. TEC24 also agreed to launch a call for submissions, inviting observers (Parties, nongovernmental organizations, intergovernmental organizations and United Nations agencies) to

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<sup>1</sup> Framework for meaningful and effective actions to enhance the implementation of Article 4, paragraph 5, of the Convention adopted by decision 4/CP.7 and enhanced by decision 3/CP.13.

<sup>2</sup> Decision 1/CP.16, paragraphs 121, 119, 120, 127.

<sup>3</sup> [TEC Rolling workplan 2019-2022](#).

<sup>4</sup> Decision 9/CP.26, paragraph 2.

provide inputs to develop the new rolling workplan and requested the secretariat to facilitate the launch of the call for submissions. The call for submissions was opened from 6 April until 15 May 2022. The secretariat has compiled the inputs received and full submission can be viewed in the TEC25 meeting documents TEC/2022/25/17.<sup>5</sup>

## **B. Scope of the note**

8. The annex to this note contains the draft workplan of the Technology Executive Committee for 2023–2027, prepared by the *ad hoc* TEC taskforce.

## **C. Possible action by the Technology Executive Committee**

9. The TEC will be invited to consider the draft and provide guidance for the Chair and Vice-Chair of the TEC to finalize the rolling workplan for 2023–2027, taking into account the discussion on the joint work programme for the Technology Mechanism that will be considered during the joint session of the TEC and CTCN Advisory Board on 9<sup>th</sup> September 2022.

10. Specifically, at TEC25, the TEC will be invited to:

- (a) Consider and elaborate further on potential activities and corresponding deliverables;
- (b) Determine the timeline of activities to ensure appropriate distribution of work of the TEC in the span of five-year period;
- (c) Identify potential partner organizations to collaborate in implementing the activities of the workplan;
- (d) Identify potential activities that could be undertaken jointly with the CTCN to enhance synergies and impacts of the work of the two bodies.

## **II. Intersessional work of the TEC taskforce**

11. The TEC *ad hoc* taskforce convened a series of virtual meetings between April until August 2022. The taskforce also met in a hybrid mode at the margins of SBs in June 2022.

12. The taskforce met, both virtually and in hybrid mode, with the CTCN AB members in the joint task force settings to look into possibilities of synergies across the workplans of the two bodies in the context of the joint work programme for the Technology Mechanism.

13. The following were considered by the taskforce in constructing the draft workplan:

- (a) Relevant COP and CMA decisions and other related outcomes including the most recent ones from COP26 and CMA3, and guidance from the Technology Framework that have not been considered in the current workplan;
- (b) Findings and reports of IPCC, including the Special Working Group III contribution to the Sixth Assessment Report that contains a specific chapter on innovation and technology development and transfer;
- (c) Previous work of the TEC and activities that will be carried over into the next workplan;
- (d) Inputs from stakeholders and observers from the Call for Inputs process launched by the TEC in May 2022;
- (e) Outcomes of TEC24 that identified potential activities to be considered under the new workplan;<sup>6</sup>
- (f) Additional inputs from taskforce members;

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<sup>5</sup> Also accessible in <https://unfccc.int/ttclear/tec/documents.html> under Stakeholders documents.

<sup>6</sup> [TEC24 meeting report](#).

(g) Joint activities TEC and CTCN for 2022–2023<sup>7</sup> and opportunities to enhance collaboration and synergize the work of the Technology Mechanism;

(h) Draft CTCN Programme of Work for 2023-2027 version 2 August 2022;

(i) Inputs from CTCN secretariat and CTCN AB members, in particular regarding potential joint activities that could be undertaken by the TEC and CTCN.

### III. Resource implications

14. Resources to support the work of the TEC is included as part of the UNFCCC biennium budget and is not unlimited. According to the interim report of the First periodic assessment of the Technology Mechanism prepared by the secretariat for consideration by the SBI 56 in June 2022, the support for the TEC from core funding averaged USD 585,000 per year and from supplementary funding varied between USD 18,000 and USD 504,500 for duration between 2017–2021. The funding is used to support staff costs, meetings of the TEC, travel of members, expert consultancies, and maintenance of TT:CLEAR.<sup>8</sup>

15. The report also highlights that the supplementary funding did not fully cover the supplementary expenses and as the results, stakeholders considered there was a lack of human resources within the UNFCCC secretariat to fully support the implementation of the current workplan.

16. As per the rules of procedures of the TEC, once the TEC agrees on the workplan, the secretariat shall prepare information on the financial requirement for the implementation of the workplan for consideration by the TEC. This would include availability of resources under the current biennium budget (2022–2023) as well as costs estimates to fully implement the workplan that will be included in the next cycle of the UNFCCC biennium budget for 2024–2025. Joint activities of TEC and CTCN for 2022–2023 that was approved in May 2022 would also need to be taken into consideration.

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<sup>7</sup> [Joint activities TEC & CTCN 2022-2023](#).

<sup>8</sup> [FCCC/SBI/2022/INF.8](#).

## Annex

### Draft rolling workplan of the Technology Executive Committee for 2023–2027

1. The Technology Executive Committee (TEC) is the policy arm of the Technology Mechanism established by the COP at COP16 in Cancun in 2010 to facilitate the implementation of actions for achieving the objective to support action on mitigation and adaptation in order to achieve the full implementation of the Convention. At this COP, Parties decided on the functions of the TEC, the mandate to further implement the technology transfer framework established under the Convention, the consideration of priority areas, and the promotion of coherence and synergy within the Technology Mechanism.<sup>1</sup>

2. Parties further decided at COP17 on six key elements of the TEC's modalities, namely analysis and synthesis, policy recommendations, facilitation and catalysing, linkage with other institutional arrangements, engagement of stakeholders, information and knowledge sharing.<sup>2</sup> Parties also stressed the importance of the TEC's engagement with a broad range of stakeholders, which would allow the TEC to mobilize a wider range of expertise and resources.<sup>3</sup>

3. Article 10 of the Paris Agreement mandates the Technology Mechanism to serve the Paris Agreement. At CMA 1 in Katowice, Poland, in 2018, Parties gave further guidance to the TEC and CTCN in the form of Technology Framework under Article 10.4 of the Paris Agreement and Scope and Modalities of the periodic assessment of the Technology Mechanism.<sup>4</sup> The technology framework outlines actions to be undertaken by the TEC and CTCN to support the implementation of the Paris Agreement in five key themes: Innovation, Implementation, Enabling environment and capacity-building, Collaboration and stakeholders engagement, and Support.

4. The Glasgow Climate Pact adopted by COP26 gave the following guidance to the Technology Mechanism:

*35. Welcomes the joint annual reports of the Technology Executive Committee and the Climate Technology Centre and Network for 2020 and 2021~~5~~ and invites the two bodies to strengthen their collaboration;*

*36. Emphasizes the importance of strengthening cooperative action on technology development and transfer for the implementation of mitigation and adaptation action, including accelerating, encouraging and enabling innovation, and the importance of predictable, sustainable and adequate funding from diverse sources for the Technology Mechanism;*

5. Decision 9/CP.26, paragraph 2, calls for increased collaboration between the TEC and CTCN, including, *inter alia*, consideration of a joint programme:

*Welcomes the continuing collaboration of the Technology Executive Committee and the Climate Technology Centre and Network and invites them to strengthen their collaboration and the provision of feedback between them with a view to ensuring coherence and synergy and effective implementation of the mandates of the Technology Mechanism, inter alia by exploring the preparation of a joint programme;*

#### A. Guiding principles

6. The new TEC workplan was developed guided by the following principles/main considerations:

(a) **Be responsive to Parties guidance:** the Technology Mechanism works under the guidance of Parties under the Convention and the Paris Agreement, therefore the TEC will work to

<sup>1</sup> Decision 1/CP.16, paragraphs 121, 119, 120, 127.

<sup>2</sup> Decision 4/CP.17, paragraph 4.

<sup>3</sup> Decision 4/CP.17, paragraph 5.

<sup>4</sup> Decision 15/CMA.1, decision 16/CMA.1.

ensure that efficiency and effectiveness is achieved through avoiding duplication of activities while still being responsive to specific guidance by each governing body;

(b) **Be aligned with mandates and functions of the TEC:** the TEC undertakes its work based on mandates and functions of the TEC as set in the decision 1/CP.16 paragraphs 119-122 and strives to create opportunities to work together with the CTCN to enhance the coherence and synergy of the Technology Mechanism. In performing its functions through its activities, the TEC will, as much as possible build on its previous work, ensure clarity, and maintain coherence of its activities to maximise impacts of the work of the TEC;

(c) **Embedding components of Technology Framework in activities of the TEC:** the new **workplan** will embed, to the extent possible, all thematic areas of the framework – Innovation, Implementation, Enabling environment and capacity-building, Collaboration and stakeholder engagement, Support - into activities of the TEC to enhance cohesiveness and to reduce the fragmentation in the implementation of the framework. The TEC will also take into consideration the principles of the Technology framework, namely: coherence, inclusiveness, results-oriented approach, transformational approach, and transparency to guide the work of the TEC. A separate document outlining how the activities align to the technology framework themes would be made available (at the later stage);

(d) **Be informed by science and be transformative:** the TEC work will be guided by and take into consideration findings and outcomes of IPCC reports, including the Special Working Group III contribution to the Sixth Assessment Report published in April 2022 that contains a specific chapter on innovation and technology development and transfer. It also will strive to pursue activities that will have transformational and long-lasting impacts. Key insights from IPCC SWG III chapter 16 and IPCC WGII SPM that will inform the new workplan of the TEC are as follows:<sup>5</sup>

- (i) Strong unit cost reductions in several granular technologies: Some options are increasingly technically viable, rapidly becoming cost effective, and have relatively high public support; many options face institutional barriers; Adoption of low emission technologies is slower in most developing countries, particularly the least developed ones;
- (ii) Technology can be an enabler to an accelerated mitigation and a key dimension of potential feasibility for climate responses and adaptation options;
- (iii) Technology development is not linear. A systemic perspective on technological change can provide insights to policymakers supporting their selection of effective innovation policy instruments. This systemic view of innovation considers the role of actors, institutions, and their interactions and can inform how innovation systems that vary across technologies, sectors and countries, can be strengthened. It can also play a role in clarifying the synergies and trade-offs between technological innovation and the SDGs;
- (iv) The speed of technological change could be explained with the key drivers of innovation: R&D, learning-by-doing and spill-over effects. In addition, new innovations are sometimes enabled by the development of general-purpose technologies, such as digitalization;
- (v) Policies can influence changes in technologies, as well as changes to the systems they support. Technology-push policy instruments stimulate innovation by increasing the supply of new knowledge through funding and performing research; Demand-pull instruments support market creation or expansion and technology transfer and thus promoting learning by doing, economies of scale, and automation;
- (vi) Developing countries have lagged in benefitting from technological opportunities. Technological change is inhibited if technological innovation system functions are not adequately fulfilled, this inhibition occurs more often in developing countries;
- (vii) International cooperation on technological innovation is one of the enablers of climate action in developing countries on both mitigation and adaptation. Experiences with

<sup>5</sup> Extracted from the presentation by Ambuj Sagar and Heleen de Coninck during the roundtable on the first technical dialogue of the first Global Stocktake taking place in June 2022 and chapter 16 WGIII contents. Full presentation is accessible in: <https://unfccc.int/event/roundtables-on-the-first-technical-dialogue-td11-of-the-global-stocktake>.

international cooperation on technology development and deployment suggest that such activities are most effective when approached as “innovation cooperation” that engenders a holistic, systemic view of innovation requirements, is done in equitable partnership between donors and recipients, and develops local innovation capabilities;

(viii) Emerging ideas for international cooperation on innovation such as promoting developing country participation in technology programmes, climate-related innovation system builders, developing countries universities as central hubs of capacity-building, sectoral agreements, international emission standards;

(e) **Supporting NDC implementation and ambition:** Paris Agreement recognizes the role of technology in supporting countries implementing their mitigation and adaptation action. The work of the TEC will be directed at facilitating and stimulating the uptake of technologies to support NDC implementation, and to enhancing the role of innovation in deploying technological solutions at a faster pace and at scale, thus contributing to more ambitious mitigation and adaptation actions;

(f) **Contributing to the achievement of climate goals and sustainable development goals:** There is a strong correlation between climate and sustainable development. Sustainable development goal (SDG) number 13 is on addressing climate change. Previous IPCC reports highlighted that the impact of climate variability and change, climate policy responses, and associated socio-economic development will affect the ability of countries to achieve SDG goals. On the other hand, the pursuit of sustainable development goals will impact climate policies. Therefore, the work of the TEC should also contribute to Parties’ efforts in achieving the goals of the Paris Agreement and SDGs;

(g) **Be gender-responsive:** The Enhanced Lima work programme on gender and its gender action plan invited all constituted bodies to mainstreaming gender consideration across the different activities;

(h) **Be mindful of resource implications:** resources to support the work of the TEC is included as part of the UNFCCC biennium budget and is not unlimited, and therefore the TEC will strive for prioritizing its activities. As per the rules of procedures of the TEC, once the TEC agrees on the workplan, the secretariat shall prepare information on the financial requirement for the implementation of the workplan for consideration by the TEC.<sup>6</sup> This would include availability of resources under current biennium budget (2022-2023) as well as costs estimates to fully implement the workplan that will be included in the next cycle of the UNFCCC biennium budget for 2024-2025. Joint activities of TEC and CTCN for 2022-2023 that was approved in May 2022 would also need to be taken into consideration.

7. In the implementation of its new workplan the TEC will ensure the following:

(a) **CTCN engagement and systematic feedback:** To ensure closer collaboration with the CTCN, every TEC activity will be implemented with CTCN engagement and consider the potential for supporting CTCN activities. This could take form of provision of inputs, consultations to ensure coherent approach (e.g. on what constitutes impactful technology), use of technical assistance data as the basis for TEC analytical work, joint work of TEC and CTCN, use of TEC work to inform technical assistance (e.g. on roadmap), etc. Moreover, the TEC will jointly plan and implement with the CTCN high-level and regional knowledge sharing events, knowledge sharing on available technologies and policy work and key thematic issues. The TEC will also consider the CTCN for joint submissions and participation in its engagement with UNFCCC constituted bodies and processes;

(b) **Stakeholders engagement:** The TEC will engage various stakeholders in undertaking its work, including through inviting participation of representatives from admitted observer organisations and UNFCCC constituency groups in the task forces of the TEC, and through partnerships and collaboration with interested institutions and organisations in implementing its workplan. In synergy with the CTCN engagement, it will allow for network members, admitted observer organisations and UNFCCC constituency groups to provide inputs and feedback on TEC publications. It will implement a venue to allow these organisations to co-develop activities relevant to the TEC workstream;

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<sup>6</sup> Decision 4/CP.17, Annex II paragraph 58.

(c) **Communication and outreach:** Responding to COP and CMA guidance to the TEC to enhance its communication and outreach, the TEC will endeavour to use various outreach and communication tools (TT: CLEAR, events including at SBs, COP and regional climate weeks, social media engagements, and CO activities undertaken together with the CTCN) for activities and outputs/deliverables of the TEC. In particular, engagement with NDEs should be undertaken in a more systematic manner to ensure that the work of the TEC is useful and relevant to the NDEs. A communication and outreach strategy will be developed as soon as the workplan is adopted, aimed to ensure that TEC products are understood and reach the intended audience. The communication and outreach strategy should also aim to enhance public awareness on the role of climate technologies in supporting mitigation and adaptation action;

(d) **Gender mainstreaming:** TEC will continue and enhance its efforts to ensure gender consideration, balance and mainstreaming in the implementation of the activities of the rolling workplan and strengthen the role of the TEC Gender Focal Points;

(e) **Monitoring and evaluation:** As guided by the Technology Framework, the TEC jointly with the CTCN will continue to improve the monitoring and evaluation system to track and evaluate impacts of the workplan activities;

(f) **Review of the workplan:** The TEC will periodically review the implementation of the rolling workplan and may adjust it, as appropriate, taking into account new mandates and future priorities set by the COP and CMA, for example the outcomes of the first periodic assessment of the Technology Mechanism to be held at COP27 and the Global Stocktake at COP 28, as it deems necessary.

## B. Structure of the workplan

8. Taking into consideration the guiding principles and inputs to the draft workplan, the activities of the TEC in the period 2023-2027 are grouped into four workstreams:

- Workstream 1: National systems of Innovation and Collaborative Research, Development and Demonstration and General Purpose Technologies;
- Workstream 2: Technology need assessment and technology roadmapping to support NDC implementation;
- Workstream 3: Transformative and innovative solutions;
- Workstream 4: Collaboration and engagement with other UNFCCC constituted bodies and processes and other UN agencies.

9. **Workstream 1: National Systems of Innovation, Collaborative Research, Development and Demonstration and General Purpose Technologies:** National Systems of Innovation (NSI) and Research, Development and Demonstration (RD&D) are the heart of the Innovation key theme under the Technology Framework where both topics are mentioned many times. CMA guidance on actions to be undertaken by the Technology Mechanism range from supporting Parties through the improvement of enabling environments for establishing and/or strengthening national systems of innovation, promoting collaboration on RD&D, to identifying ways to increase effective participation of developing countries in collaborative approaches to RD&D and promoting the development, deployment and dissemination of existing innovative technologies and accelerating the scale-up and diffusion of emerging climate technologies.

10. The TEC has undertaken work related to these topics (including on accelerators and incubators),<sup>7</sup> however, more could be done by taking these work forward and connecting them with other aspects of the Technology Framework such as capacity building, support, and moving towards actual implementation. This could be done through the creation of partnerships and more engagement with private sector and academia who are active in these fields.

<sup>7</sup> <https://unfccc.int/ttclear/tec/rdandr/#Compilation>; <https://unfccc.int/ttclear/incubators/#fullreport>.

11. An area relevant to NSI and RD&D is the work on emerging technologies. The TEC undertook work on emerging technologies so far both in mitigation sectors: in the energy supply sector in 2021 and continued with the transport sector in 2022.<sup>8</sup> As IPCC reports have highlighted that adaptation actions will become more prominent in the future, the TEC will analyse emerging technologies for adaptation, building on previous work on emerging technologies and outcomes of Technology Day events that focused on innovative approaches on adaptation technologies.<sup>9</sup>

12. General purpose technologies (GPTs) provide solutions that could be applied across sectors and industries) by creating technological platforms for a growing number of interrelated innovations. Several GPTs relevant for climate mitigation and adaptation emerged as a result digitalization, namely the adoption or increase in use of information and communication technologies (ICTs) by citizens, organizations, industries or countries and the associated restructuring of several domains of social life and of the economy around digital technologies and infrastructures. Digital technologies require energy, but increase efficiency, potentially offering technology-specific GHG emission savings; they also have larger system-wide impacts. In industrial sectors, robotization, smart manufacturing (SM), internet of things (IoT), artificial intelligence (AI), and additive manufacturing (AM or 3D printing), have the potential to reduce material demand and promote energy management. Smart mobility is changing transport demand and efficiency. Smart devices in buildings, the deployment of smart grids and the provision of renewable energy increase the role of demand-side management and support the shift away from asset redundancy. Digital solutions are equally important on the supply side, for example, by accelerating innovation with simulations and deep learning or realizing flexible and decentralized opportunities through energy-as-a-service concepts and particularly with Pay-As-You-Go. But digitalization could increase energy demand and negatively impact equality unless appropriately governed.<sup>10</sup>

13. The expected outcome from this workstream is: Enabling policies to incentivize and nurture a supportive environment for technological innovation are introduced and promoted, strengthened national system of innovations and increased participation of developing countries in international cooperation in innovation and RD&D and innovative climate solutions enabled by general purpose technologies.

14. **Workstream 2: Technology needs assessment and technology roadmapping in support of NDC implementation:** One of the TEC functions is to catalyse the development and use of technology road maps or action plans at the international, regional and national levels through cooperation between relevant stakeholders, including the development of best practice guidelines as facilitative tools for action on mitigation and adaptation. The COP has asked the TEC to continue working on technology needs assessments (TNAs). The recent TEC work on TNA explored the linkages with the NDC as a planning tool for countries action on climate.<sup>11</sup> As countries are now submitting long-term low emission development strategies (LT-LEDS), it is important for the TEC to examine how technology planning tools such as TNAs, technology roadmaps, and long-term technological pathways could support the implementation of NDCs, NAPs as well as LT-LEDS, what the challenges and enablers are, and how countries can be supported in this regard.

15. The expected outcome from this workstream is: Technology plans and tools are mainstreamed and integrated into national climate plans, including NDCs, LT-LEDS, and NAPs and utilized to support their implementation.

16. **Workstream 3: Transformative and innovative solutions:** The IPCC report has highlighted that there is a need to accelerate the reduction of greenhouse gas emissions to align with the Paris Agreement goal of 1.5 degrees.<sup>12</sup> Transformative technological and innovative solutions are very much needed in this regard. The TEC is the only body under UNFCCC process that focuses on technology policy, therefore it plays a leading role on these matters, and can make a significant contribution by providing relevant recommendations based on its work directly to Parties and through its collaboration with the CTCN.

<sup>8</sup> <https://unfccc.int/ttclear/tec/energysupplysector.html>, [Background paper on decarbonization technologies for sustainable road mobility](#).

<sup>9</sup> <https://unfccc.int/ttclear/coastalzones/>; [https://unfccc.int/ttclear/events/2020/2020\\_event07](https://unfccc.int/ttclear/events/2020/2020_event07).

<sup>10</sup> [https://report.ipcc.ch/ar6wg3/pdf/IPCC\\_AR6\\_WGIII\\_FinalDraft\\_Chapter16.pdf](https://report.ipcc.ch/ar6wg3/pdf/IPCC_AR6_WGIII_FinalDraft_Chapter16.pdf).

<sup>11</sup> <https://bit.ly/3PD5eyn>.

<sup>12</sup> IPCC Special report on global warming of 1.5 degrees <https://www.ipcc.ch/sr15/chapter/spm/>.



17. The following sectoral focuses are proposed under this workstream, taking into account the recent IPCC reports, inputs from TEC stakeholders, and as much as possible alignment to the CTCN Programme of Work five thematic areas (see draft CTCN Programme of Work). These are:

- (a) Agri-water-food system;
- (b) Building and infrastructure;
- (c) Transformative industry;
- (d) Nature-based solutions (current focus: Ocean).

18. With regard to energy systems, the TEC considered that there have been quite a number of previous TEC work addressing energy supply and energy efficiency, therefore, the current workplan does not place energy system as specific sectoral focus, but rather embed it in the discussion of other areas, wherever applicable (for example on the agri-food-water nexus, and transformative industry, transport).

19. The expected outcome from this workstream is: Technological innovation and solutions are used and promoted to help countries implement their NDCs, achieve the goals of Paris Agreement and SDGs.

20. **Workstream 4: Collaboration and Engagement with UNFCCC constituted bodies and processes and other UN agencies:** In the past years the TEC has engaged in work of other UNFCCC constituted bodies and processes through mandates of the COP or CMA, or through voluntary collaboration proposed by the collaborating bodies. The TEC has a standing work in providing inputs to SCF on draft guidance for the operating entities of the Financial Mechanism. The TEC also has been requested by the COP to engage in the UNFCCC pre-2020 ambition and implementation through provision of inputs to Parties and engagements at regional technical expert meetings. Most recently, the TEC contributed to the Global stocktake (GST) technical phase through provision of inputs. In a less formal way, the TEC has been active in the work of Adaptation Committee, Paris Committee and Capacity-building, and GCF by participating regularly in working groups and annual meetings established by these bodies. The Gender Focal Points of the TEC also regularly engage with the Gender team of the UNFCCC secretariat.

21. As the work in addressing climate change becomes larger and more complex, more coordination with other constituted bodies is needed to ensure the work under the UNFCCC process is not duplicative. In broader context, the TEC also needs to be mindful of the technology-related work undertaken by other UN agencies to ensure coordination to avoid overlap and improving synergies and collaboration with other UN agencies.

22. The expected outcome from this workstream is: TEC engages meaningfully and strategically in the work of other constituted bodies, the UNFCCC process and other UN agencies.

23. Table 1 below presents proposed workplan activities to be undertaken within the above mentioned workstreams.

Table 1  
Draft Technology Executive Committee workplan 2023–2027

Area	Activity ID	Activity	Expected outputs/deliverables					Potential partners (not exhaustive)
			2023	2024	2025	2026	2027	
<b>A. National System of Innovation, Collaborative RD&amp;D and General Purpose Technologies</b>								
<b>Expected outcomes:</b> Enabling policies to incentivize and nurture a supportive environment for technological innovation and innovative climate solutions enabled by general purpose technologies are introduced and promoted.								
<b>Activity A.1. Identify and analyse ways to support countries in establishing and/or strengthening national system of innovation to incentivize innovation, including inter alia through improvement of enabling environments, capacity building, and access to innovation funds.</b>								
<b>Climate objectives:</b> Cross-cutting								
<b>Technology framework themes:</b> Innovation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
NSI	A.1.1.	Continue work on NSI, building on work on compilation of good practices and lessons learned on the setup of NSI, including possible inclusion of examples of gender responsive practices, and taking into account the outcomes of IPCC AR6 Working Group III report relevant to strengthening national system of innovation. In particular policy frameworks that are effective enablers for Research & Development and Innovation, including the access to funding. <i>- Activity to be further elaborated -</i> Consider updating TEC Brief on NSI (including examples from CTCN Technical assistance on NSI)	Compilation of good practises and lessons learned on NSI	Update of TEC Brief on NSI	Systemic approaches to NSI and innovation indicators.	Role of NDEs within NSI, institutional arrangements, capacity building needs for such arrangements.	tbc	IPCC WG III WECEF Universities/academia, research institutes
	A.1.2	Building on the findings of TEC work on NSI and initial TEC work on innovative financing on various technology cycle, explore ways to support readiness and capacity building process to enable Direct Access for innovation from climate funds, capacity building for accessing finance for innovation and transformational impact. and analysis of potential barriers embedded in these processes and opportunities for improvement on their design.  <b>Potential specific joint activity with CTCN:</b> Design capacity building workshop or guideline for direct access entities to enhance their capacity for designing funding proposals.		Initial engagement with Funds and FM operating entities to define scope of work	tbc	tbc	tbc	Adaptation Fund Green Climate Fund Global Environment Facility Regional Climate Weeks partners PCCB

Area	Activity ID	Activity	Expected outputs/deliverables					Potential partners (not exhaustive)	
			2023	2024	2025	2026	2027		
<b>A.2. Stimulate climate technology RD&amp;D through partnership and strengthening roles of innovators, incubators and accelerators, and the participation of developing country Parties in collaborative approaches to RD&amp;D</b>									
<b>Climate objectives:</b> Cross-cutting									
<b>Technology framework themes:</b> Innovation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )									
RD&D	A.2.1.	Building on TEC work on collaborative RD&D, analyse the needs for RD&D for high-impact emission-reduction technologies to help countries implement their NDCs and other mitigation strategies and ensure long-term environmentally sustainable energy supply and identify ways to increase participation of developing country Parties in collaborative RD&D <i>- Activity to be further elaborated, topic to be further defined e.g. energy carriers and storage (Green hydrogen and ammonia, high voltage direct current transmission lines, sodium and novel battery technologies, etc), resilient communication and energy systems, etc.</i>	Initial engagement with potential partners to define scope of work					Partnership in RD&D	CTCN Partnership and Liaison Office (PALO) GCF FCA Global Innovation Hub International technology RD&D partnerships and initiatives Academia and Universities; Mission Innovation; Breakthrough Energy
Incubators and accelerators	A.2.2	Building on TEC previous work on incubators and accelerators, work with Parties to promote their use, and supporting the development of proposals to Financial Mechanism entities incorporating accelerators and innovators and effective ecosystems for start-ups, including sources of funding, IPR systems and practices, industry- academia partnership, public private partnerships and SME engagement. <i>- Activity to be further elaborated –</i>							

Area	Activity ID	Activity	Expected outputs/deliverables					Potential partners (not exhaustive)
			2023	2024	2025	2026	2027	
<b>A.3. Identify and analyse emerging adaptation technologies that contributes to reducing vulnerabilities and strengthening resilience</b>								
<b>Climate objectives:</b> Adaptation								
<b>Technology framework themes:</b> Innovation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
Emerging technologies	A.3.1.	Building on TEC work on innovative approaches on adaptation technologies (Technology Day) and emerging technologies, identify and analyse emerging technologies for adaptation (focus to be further defined) e.g. early warning systems and disaster risk management  - Activity to be further elaborated -		Initial engagement with potential partners to define scope of work	tbc	tbc		NWP IUCN AFCIA Adaptation Fund Adaptation Committee Warsaw International Mechanism for Loss & Damage
<b>A.4. Explore innovative climate solutions enabled by general purpose technologies</b>								
<b>Climate objectives:</b> Cross-cutting								
<b>Technology framework themes:</b> Innovation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
Digital Technologies	A.4.1.	Applied Machine learning and AI as an enabler for climate solutions. a) Individual AI models for distinct climate challenges based on Satellite Imagery Analysis, Atmospheric analysis, and AI Acoustics. b) Integration and networking techniques to connect AI data sources (climate sensors, AI model outputs, research databases, etc.). c) Cross-correlation AI models and frameworks (higher order climate analysis and modes of course correction) d) AI model and database catalogues (AI technology transfer and data access) e) AI development approaches and education, including the avoidance of bias.	Workshop to raise awareness of the role of AI, tools and means for technology that could be used to address specific climate challenges.	tbc	tbc	tbc	tbc	Enterprise Neurosystem, BCI, Global Innovation Hub
Digital Technologies	A.4.2.	Distributed ledgers and technology databases as supporting tools and resources for innovation cooperation.	Presentation of use cases and usage of this tools for climate technologies					BCI, WIPO

Area	Activity ID	Activity	Expected outputs/deliverables					Potential partners (not exhaustive)
			2023	2024	2025	2026	2027	
<b>B. Technology needs assessment and technology road mapping to support NDC implementation</b>								
<b>Expected outcomes:</b> Technology plans and tools are mainstreamed and integrated into national climate plans, including NDCs, LT-LEDS, NAPs to support its implementation								
<b>B.1. Facilitate the undertaking and updating of TNAs as well as enhancing the implementation of their results and promote the link between TNA and NDCs, NAPs and LT-LEDS</b>								
<b>Climate objectives:</b> Mitigation & Adaptation								
<b>Technology framework elements:</b> Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
TNA	B.1.1.	Consider updating the “Enhancing Implementation of Technology Needs Assessments, Guidance for Preparing a Technology Action Plan“ guidelines taking into account COP/CMA guidance, taking into account CTCN experience of providing support to countries for TNA in the form of TAs and Readiness programme of GCF and consider integrating gender considerations and gender-responsive measures <i>- To be further elaborated -</i>		Update of guidelines				UNEP CCC WECF GCF GEF NDC Partnership Low-Emission Development Strategies Global Partnership
<b>B.2. Promote the role of technology roadmapping and long-term technological pathways as a means to implement countries NDC action on mitigation and adaptation</b>								
<b>Climate objectives:</b> Cross-cutting								
<b>Technology framework elements:</b> Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
Technology road mapping	B. 2.1	Building on joint TEC-CTCN work on technology roadmap (scoping paper) and TEC technical paper on sustainable road mobility, identify potential technology roadmapping in transport sector that can be rapidly deployed in developing countries to support the implementation of their NDCs <i>- Activity to be further elaborated, topic to be confirmed -</i>						- SLOCAT - University/ Academia International Council on Clean Transportation Zero Emission Vehicles Transition Council
Long term technological transition pathways	B.2.2	Building on TEC previous work on TNA links with NDC and technology road mapping, analyse how the TEC can support countries in the development of long-term technological transition strategies and through the uptake of climate technologies <i>- Activity to be further elaborated, sectoral</i>			Analysis of long-term technological transition strategies in LT-LEDS submissions,	Recommendations to integrate/mainstream technology plans to national climate plans		

Area	Activity ID	Activity	Expected outputs/deliverables					Potential partners (not exhaustive)
			2023	2024	2025	2026	2027	
		<i>focus to be further defined -</i>			best practises and challenges			
<b>C. Transformative and innovative solutions</b>								
<b>Expected outcomes:</b> Technological innovation and solutions are used and promoted to help countries implement their NDCs, achieve goals of Paris Agreement and SDGs								
<b>C.1. Promote innovative technology, practices and solutions related to Agriculture-food-water system to support countries implement their NDC in these sectors and build inclusive agriculture food system to achieve food security</b>								
<b>Climate objectives:</b> Adaptation								
<b>Technology framework themes:</b> Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
Agri-water-food system	C.1.1	<p>Building on TEC previous work on climate-smart agriculture, analyse knowledge gaps on the nexus of agriculture, water, food security, energy and climate and identify relevant adaptation technologies (including indigenous), innovation and potential digitalization to strengthen adaptation planning (NAP) and NDCs in agriculture</p> <p>Dialogue with diverse stakeholders, including IPO, women, youth, private sector, digital providers to scale up sustainable and inclusive agri-food systems</p> <p><b>Potential specific joint activities with CTCN:</b></p> <ul style="list-style-type: none"> <li>- Jointly develop analysis and recommendations regarding national agro-forestry policies</li> <li>-Explore circular economy and bioeconomy approaches to agriculture</li> </ul>	tbc	tbc	tbc			<ul style="list-style-type: none"> <li>- NWP</li> <li>- FAO</li> <li>- WBCSD</li> <li>- MIT joint programme</li> <li>- WCG for gender just solutions</li> <li>- Youth</li> <li>- LCIPP</li> <li>Global alliance on smart agriculture</li> <li>- Private sector</li> <li>- Enterprise Neurosystem on role of digitalization</li> <li>- Philanthropic organizations</li> <li>- Climate funds</li> <li>- WIPO to use the WIPO GREEN database as a repository and showcase of solutions identified by TEC</li> </ul>

Area	Activity ID	Activity	Expected outputs/deliverables					Potential partners (not exhaustive)
			2023	2024	2025	2026	2027	
<b>C.2. Promote innovative technology, practices and solutions related to sustainable building and infrastructure to strengthen resilience and support countries implement their NDC in these sectors</b>								
Climate objectives: Adaptation and Mitigation								
Technology framework themes: Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement (A more detailed analysis will follow once activities are agreed)								
Building and infrastructure	C.2.1.	Use of low carbon materials in building and building codes that promote energy efficiency and resilience / Circular economy in building sector / Green-gray infrastructure / heat pumps - Activity to be further elaborated, topic/sectoral focus to be defined -	tbc					Global Alliance for Buildings & Constructions IUCN
<b>C.3. Promote innovative technology, practices and solutions related to hard-to-abate sectors in industry to support countries implement their NDC in these sectors</b>								
Climate objectives: Mitigation								
Technology framework themes: Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement (A more detailed analysis will follow once activities are agreed)								
Transformative Industry	C.3.1.	Promote low and near zero emission steel and cement production and products through support on innovation, the enabling environments (standards, policies), sustainable purchasing commitments, and the support/ financing  Establish a TEC working group for the development of a guidance on low-emission steel and cement production and products;  <b>Potential joint activities with CTCN:</b> - Engage relevant Network members in these sectors in the TEC working group and promote their technologies in CTCN website  - Technology Day with the topic of <i>Transformative industry</i>	TEC working group on decarbonizing steel and cement	Dialogue / event (tbc)	Standards for low carbon steel and cement (e.g. for finance public/ private, Green Public Procurement)	TEC policy brief/ recommendations		Industrial Deep Decarbonisation Initiative; UNIDO; IEA; GCCA; World Steel, Responsible Steel, WRI, Agora Energiewende; First Movers Coalition; Global Alliance for Building & Constructions  possibly GEF and GCF for adopting guidelines for their financing; Climate Group;  - CTCN and WIPO to expand climate technology databases

Area	Activity ID	Activity	Expected outputs/deliverables					Potential partners (not exhaustive)
			2023	2024	2025	2026	2027	
<b>C.4. Promote innovative nature-based solutions to strengthen adaptation action and contribute to the implementation of NDCs</b>								
<b>Climate objectives:</b> Adaptation and Mitigation (co-benefits)								
<b>Technology framework themes:</b> Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
Nature-based Solutions in ocean	C.4.1.	Building on TEC previous work on ocean and coastal and ecosystem-based adaptation, analyse roles of nature-based solutions, technology innovation, including on how technology can help address issues relating to marine protected areas also input into achievement of SDG no.14  Participate in UNFCCC annual Ocean dialogue						UN Ocean IUCN Enterprise Neurosystem on role of digitalization - WIPO to use the WIPO GREEN database as a repository and showcase of solutions identified by TEC
<b>D. Collaboration and engagement with UNFCCC constituted bodies and processes and other UN agencies</b>								
<b>Expected outcomes:</b> Meaningful and strategic engagement with the work of UNFCCC bodies and processes and of other UN agencies								
<b>D.1. Standing Committee on Finance and operating entities of the Financial Mechanism</b>								
<b>Climate objectives:</b> Cross-cutting								
<b>Technology framework themes:</b> Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
	D.1.1	Participate in GCF annual meeting with UNFCCC constituted bodies	Annual meeting GCF	Annual meeting GCF	Annual meeting GCF	Annual meeting GCF	Annual meeting GCF	-GCF
	D.1.2	Provide inputs to SCF on draft guidance for the operating entities of the Financial Mechanism	Guidance to OE FM	Guidance to OE FM	Guidance to OE FM	Guidance to OE FM	Guidance to OE FM	- SCF
<b>D.2. Adaptation Committee and LDC Expert Group</b>								
<b>Climate objectives:</b> Adaptation								
<b>Technology framework themes:</b> Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
	D.2.1.	Participate in Adaptation Committee Taskforce on NAPs	Inputs to AC and LEG	Inputs to AC and LEG	Inputs to AC and LEG	Inputs to AC and LEG	Inputs to AC and LEG	AC, LEG
<b>D.3. Paris Committee on Capacity Building</b>								



Area	Activity ID	Activity	Expected outputs/deliverables					Potential partners (not exhaustive)
			2023	2024	2025	2026	2027	
<b>Climate objectives:</b> Cross-cutting								
<b>Technology framework themes:</b> Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
	D.3.1.	Participate in Informal Coordination Group (ICG) of PCCB to enhance coherence on capacity-building activities	Inputs to ICG	Inputs to ICG	Inputs to ICG	Inputs to ICG	Inputs to ICG	PCCB
<b>D.4. UNFCCC Gender Team</b>								
<b>Climate objectives:</b> Cross-cutting								
<b>Technology framework themes:</b> Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
	D.4.1.	Collaborate with UNFCCC Gender team to develop a knowledge product focusing on gender and technology, in collaboration with CTCN Gender Focal point	TEC brief tbc					UNFCCC Gender team
<b>D.5. Global Stocktake</b>								
<b>Climate objectives:</b> Cross-cutting								
<b>Technology framework themes:</b> Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
	D.5.1	Provide inputs to technical phase of Global Stocktake (2027)					TEC inputs to second GST	
<b>D.6. UNEPCCC</b>								
<b>Climate objectives:</b> Cross-cutting								
<b>Technology framework themes:</b> Innovation, Implementation, Enabling environment & Capacity-building, Support, Collaboration & stakeholder engagement ( <i>A more detailed analysis will follow once activities are agreed</i> )								
	D.6.1	Contribute to UNEPCCC Technology Progress Report Series composed of a section with the aim to track and analyse the enabling conditions necessary for the development, transfer, diffusion, and uptake of climate technologies presented by technology, sector, and region, and not at the level of individual countries and a second that contains thematic chapters, with more detailed analysis on topics to be decided from year to year.	Participation on the Steering Committee	Participation on the Steering Committee	Participation on the Steering Committee	Participation on the Steering Committee	Participation on the Steering Committee	UNEPCCC