United Nations Climate Change
Technology Executive Committee

TEC Brief #16

Experiences, Lessons Learned, and Good Practices from GCF and GEF Support for Climate Technologies

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Why this TEC Brief?

Technology development and transfer constitutes a key pillar under the framework for international cooperation established to safeguard the global commons against the effects of climate change. Developing and transferring technologies to support national climate action has been an essential element for reducing greenhouse gas emissions as well as for building adaptive capacity and resilience to climate change. The experience, good practices, and lessons learned from support for climate technologies provided by the operating entities of the Financial Mechanism – the Global Environment Facility (GEF) and the Green Climate Fund (GCF) – provides inspiration and direction for accelerating technology development and transfer to support Parties' action in mitigation and adaptation to achieve the full implementation of the United Nations Framework Convention on Climate Change and the Paris Agreement.

The insights of this policy brief are based on a review of 42 projects, which consisted of 18 completed GEF-funded projects and 24 ongoing GCF-funded readiness support projects with the Climate Technology Centre and Network (CTCN) as delivery partner and climate change projects with technology elements, with a focus on Small Island Developing States (SIDS) and the Least Developed Countries (LDCs).

This policy brief:

- Pinpoints key aspects drawn out of project implementation regarding the relevance and impact of support for technology development and transfer provided by the GEF and GCF;
- Examines the adoption of and reporting on transformative climate technologies in key sectors, seen as vital to achieving the world's 2030 and 2050 emission reduction targets;
- Looks at ways in which gender mainstreaming and stakeholder engagement have supported technology development and transfer;
- Highlights approaches that have contributed to the successful implementation and scaling-up of initiatives with technology components

Part of a long-running series produced by the Technology Executive Committee (TEC), this policy brief provides recommendations for further action by international, regional, and national stakeholders.

Highlights

- There is shared conviction across stakeholders regarding the value of technology as a **key enabler to address climate change;**

- In reviewing the selected set of 42 projects (18 completed GEF-funded projects and 24 ongoing GCF-funded readiness support projects with the CTCN as delivery partner and climate change projects with technology elements), the support for climate technologies provided by the operating entities of the Financial Mechanism demonstrates a shared commitment to address the climate emergency, help vulnerable societies adapt to the adverse impacts of climate change and support developing country Parties in raising and realizing their climate-related ambitions;

- Support available from the GEF and the GCF for **TNAs and the development of associated technology action plans has served a foundational role in setting the scene for effective technology development and transfer;**

- As the implementation arm of the Technology Mechanism, the **CTCN has provided crucial early-stage technology support** and is actively responding to growing demand from countries for its services owing to its strong sectoral expertise, agility, responsiveness and strength in filling a gap by funding projects that support countries in their technology planning processes, development of national policies and standards, and technology road maps, particularly through specialized teams (the network) and facilitation processes that ensure national ownership of the planning process;

- Irrespective of whether technology is transferred or endogenously developed, having the right people in place with the right set of skills **to operate and maintain technology represents an ongoing challenge;**

- Consensus is growing regarding the **need to promote transformative climate technologies** to support the development of more ambitious NDCs, and the implementation of current NDCs and to track their level of adoption and progression on a sectoral level in achieving emission reduction targets and the purpose and long-term goals of the Paris Agreement;

- Following the strengthening of guidance by the operating entities of the Financial Mechanism, **implementing agencies have placed more attention on gender mainstreaming;** its treatment came through more convincingly in adaptation projects than in those aimed at mitigation. Increased traction on this topic relates to building further understanding on the part of project designers and implementers regarding the ways in which gendered technology development and transfer projects could drive transformative impact;

- While effective stakeholder engagement is a key strategic lever for successful project implementation and for leveraging the financial and non-financial resources of the private sector, this dimension does not appear to be adequately highlighted in project evaluations. The **potential of private sector actors to support innovation and technology development and transfer has not yet been fully tapped;**

- Successful implementation and **scaling up of technology initiatives also relate to absorption capacity and market size;**

- While institutional support for implementation and scaling up of technology initiatives is available, the review of selected projects points to the need to first understand the role of national policy in enabling and hindering technology development and transfer and **prioritizing the creation of enabling environments.** Prospects for technology adoption and replication can be heightened through influence in the policy space leading to a correction of market conditions (e.g. alignment incentives).

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1 Relevance and Impact of Support for Technology Development and Transfer

In reviewing the selected set of 42 projects (43% fully implemented, 57% ongoing as of 2021), the support for climate technologies provided by the operating entities of the Financial Mechanism demonstrates a shared commitment to address the climate emergency, help vulnerable societies adapt to the impacts of climate change, and support developing countries in raising and realising their climate ambitions.

In administering its part of international climate funds, while also acting as a financial mechanism serving five Conventions, the GEF's support since 2008 under the Poznan strategic programme on technology transfer for a climate technology network, regional climate technology centres, technology needs assessment (TNA), and priority technology projects to foster innovation and investment has borne important fruit as well as lessons learned.

Described as 'cost-effective experience sharing' with high stakeholder engagement, TNAs have performed a foundational role in setting the scene for effective technology development and transfer. Through the GEF's funding of four TNA phases, 103 countries undertook indepth needs assessments and developed Technology Action Plans (TAPs). From July 2021, GCF's support for TNA under its readiness support programme reinforced the good practice of mainstreaming TNA results into the policy development process as a tool to support national and sectoral planning. On-the-ground learning from CTCN operations showed that the consistent, step-wise path from first establishing and strengthening a recipient country's institutional set-up to enable continued engagement with the GCF, followed up by the provision of country programming support that serves to operationalize that machinery through a relatively modest request (typically for technical assistance, leveraging its TNA) has functioned as a valuable capacity-building approach.

Responding to growing demand from developing countries for its services due to its strong sectoral expertise, agility, responsiveness, and strength in filling a gap by supporting small projects, the CTCN has provided critical early-stage technology support. CTCN, together with four regional climate technology centres in Africa, Asia-Pacific, Europe, and Latin America and the Caribbean (implemented by Multinational Development Banks with the aim of harnessing their investment capacity in the respective regions), operate as 'project accelerators' for technology development and transfer and 'builders of a climate innovation system' by connecting climate/finance/policy actors and technology; creating synergies; and supporting capacity development and learning.

While actively maintaining a 'red thread' to a country's NDC, national adaptation plans (NAPs), and other national climate strategies through provisions contained in technical assistance requests, the CTCN's potential to trigger systemic impact was not, as yet, immediately visible. Furthermore, it was reported that some technology stakeholders did not fully understand the scope of the GEF's mandate, its operational modalities, the opportunities that exist, and how they could interface with entities like the CTCN. In countries where focal points shared the same hats and/or sat in the same ministry, coordination was quite effective. Despite networking events organised by the CTCN, gaps in national-level coordination across actors pointed to an ongoing challenge for ensuring effective collaboration.

Irrespective of whether technology is transferred or endogenously developed, an ongoing challenge uncovered in the review of implemented and ongoing projects relates to the importance of having the right people in place with the right set of skills to operate and maintain the technology, and for those technologies to yield updated continuous information that is actively used to inform decision-making.

Country case study: Lebanon

Used the TNA process to focus on four sectors. Having a fully-dedicated Technical Focal Point coordinating TNA was key to delivering good quality outputs. These have subsequently been extensively used by policy-makers and technical experts to guide proposals, identify capacity-building needs, and request technical assistance. Many national reports reference the TNA. A stakeholder attested, "it's not just words. They are carrying the data forward and make something better out of it".

Country case study: Georgia

Implemented a project based on its TNA results to promote the adoption of energy-efficient lighting technologies. The country's Technology Action Plan also outlined a project to introduce wind power technologies as Georgia has a large, as yet untapped, potential for wind power. It was estimated that implementation of the TNA-recommended projects could reduce CO2 emissions by 4.5 million tonnes over a 10-year period.

Country case study: Cambodia

Used its TNA and related Technology Action Plan (TAP) to promote the adoption of climate-friendly technology within its special economic zones. A Technical Working Group plays a key role in facilitating inter-ministerial coordination.

Multiple Country Case Study: Lesotho, Malawi, Zambia

Following TNA assessment in three countries, a programmatic approach was adopted to gain synergies. Implemented under the GCF-funded readiness support programme, the "National Framework for Leapfrogging to Energy Efficient Appliances and Equipment" showed that approaches that work in one country, which can work in others with minor adjustment, are key to scaling up action on technology development and transfer. By crowding-in intelligence to the same topic, this approach drives impact.

Multiple Country Cases: Bosnia and Herzegovina, Ghana, Nepal, Pakistan, Tonga, Zimbabwe

The CTCN's support for the development of technology planning processes, national policies and standards, and technology roadmaps has proved vital for ensuring country ownership of planning processes, exemplified by the assistance provided to Pakistan to develop its energy efficiency law, which has now been adopted; support to Nepal to develop its AgroForestry Policy, which has now been approved by the country; collaboration with Tonga on its Energy Efficiency Roadmap, which is now in use. CTCN assistance has helped Ghana and Zimbabwe develop e-mobility policies, while advice provided to Bosnia and Herzegovina on its district heating plan has facilitated the country's access to EBRD funding.

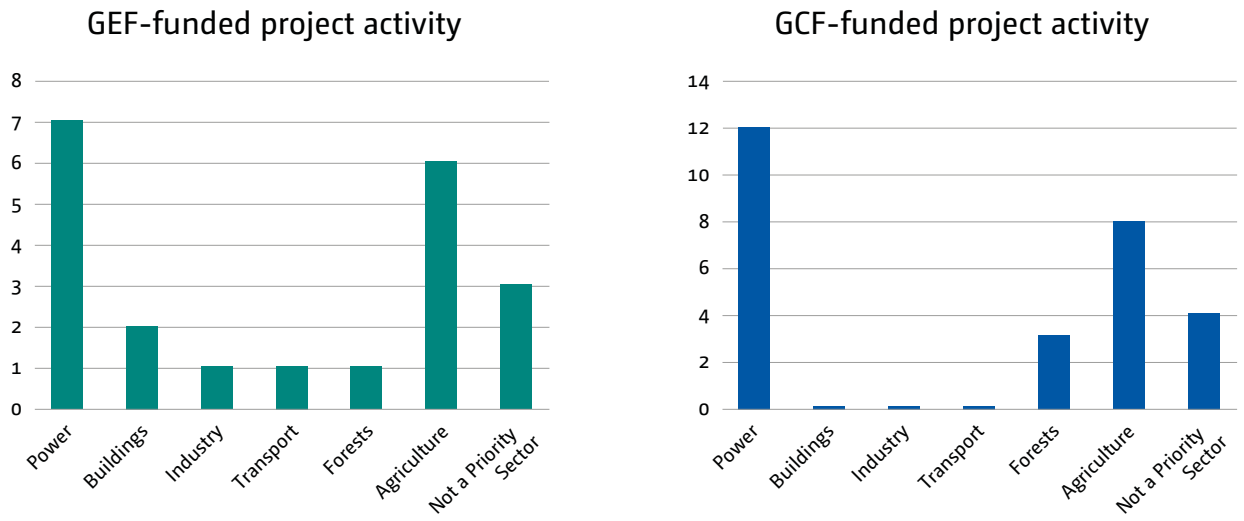
2 Promotion of Transformative Climate Technologies

There is a growing consensus around the need to promote the implementation of transformative climate technologies and to track their level of adoption and progression in achieving the purpose and long-term goals of the Paris Agreement.

In their State of Climate Action Report (2021)[1], World Resources Institute (WRI) and ClimateWorks Foundation assessed global and country-level progress across benchmarks for six sectors (Power, Buildings, Industry, Transport, Forests, Agriculture) that would limit global warming to 1.5°C and therefore prevent its most dangerous impacts. While advancements were evident in some sectors, they found that for most, the rate of change was much too slow for the world to achieve the progress in GHG emission reduction needed by 2030 and 2050 to protect future prosperity and well-being, by limiting global warming to an average of 1.5 degrees Celsius.

Looking at the selected set of GCF- and GEF-funded projects through this sectoral benchmark lens (see Figure 1), the interventions mainly related to the Power Sector (43%, i.e. 19 of 44 projects), with most oriented to increasing renewables' share in electricity generation. The Agriculture Sector attracted the second highest level of activity (27%, i.e. 12 of 44 projects). Of these, 6 GCF-funded projects related to enhancing crop yields, mostly through improved water management, while the GEF-funded projects focussed on reducing carbon emissions from agricultural production. Four of the 44 projects (less than 10%) related to Forests (3 funded by GCF; 1 by GEF), all oriented towards preventing deforestation. In the 3 remaining sectors, no GCF-funded projects were identified. On the GEF side, there were 2 projects in Buildings (to reduce energy intensity), 1 for Transport (to increase electric vehicles), and 1 for Industry. Within the overall dataset, 16% did not map to any of the WRI-identified priority sectors (i.e. 3 GEF-funded projects plus 4 GCF-funded Adaptation projects aimed at building meteorological or hydrological information for development planning).

Figure 1 Mapping of Reviewed Projects to Priority Sectors to Limit Global Warming



1 https://files.wri.org/d8/s3fs-public/2021-09/state_climate_action.pdf?VersionId=Rw2ZmL1HWNSg4z4iZGYz.SdTmn59xvlS, p3

According to the UNFCCC's 2021 NDC Synthesis Report[2], in most key sectors, only a portion of countries are declaring their adoption of transformative climate technologies. No systematic country-level information is currently available, apart from the energy sector where 84% of countries indicated their use of renewable energies. With respect to the pursuit of mitigation objectives, there is room for improvement regarding the adoption of transformative technologies and reporting on the related progress in meeting global climate ambitions. The pursuit of adaptation objectives would benefit from strengthening climate resilient development pathways[3].

Case study: Chile

The GEF-funded local solar technology project implemented in Chile by the Inter-American Development Bank (IADB) and Ministry of Energy highlighted the achievement of its Photovoltaic (PV) Training Programme in developing capacities in technical schools outside the national capital, which stimulated the interest of graduates to launch start-ups based on their knowledge of the design, operation, and maintenance of small-scale PV systems. An interviewed stakeholder asserted, "it's fine to install a technology in a country, but what happens when people leave or retire? It's important to have plans in place and a younger generation that can interact with the technology".

Case study: Caribbean Community Climate Change Centre

The Belize-based Caribbean Community Climate Change Centre (CCCCC), which is an accredited entity of the GCF, rolled out an internship programme to build the capacity of students in every aspect of one of its projects (from photovoltaics to groundwater recharge to quality testing). This initiative was aimed at building the capacity of the next generation to take ownership of the technology through establishing succession planning. The CCCCC coordinates the Caribbean region's response to climate change, identifying effective solutions and projects to combat its environmental impacts and global warming.

2 https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs/ndc-synthesis-report

3 The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report, Climate Change 2022: Mitigation of Climate Change, Working Group III, on p660, referring to Working Group II (Chapter 18), defines *climate resilient development pathways* as continuous processes that imply deep societal changes and/or transformation so as to strength sustainable development, efforts to eradicate poverty and reduce inequalities while promoting fair and cross-scalar capacities for adaptation to global warming and reduction of GHG emissions in the atmosphere. Transformative action refers to leveraging change in the first dimensions of development (people, prosperity, partnership, peace, planet) https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/

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3 Gender Mainstreaming and Stakeholder Engagement

GEF and GCF have both adopted gender policies and encourage climate action that benefits women and men. GCF's Annual Performance Report template obliges project implementers to report on Environmental and Social Safeguards & Gender, a Gender Action Plan, and progress on their implementation. To support nationally designated authorities (NDAs), focal points, and delivery partners, GCF has developed a toolkit with guidance to holistically mainstream gender. GEF has also produced guidance to advance gender equality and noted a positive trend in projects reaching out to women's associations, ministerial gender focal points, non-governmental organisations, and civil society.

While the operationalisation of gender policies took time to permeate project design and implementation, this topic has gained more traction following the strengthening of institutional guidance. However, a gap in understanding still remains regarding the extent to which climate impacts are gendered and that gender mainstreaming's core issue relates to power asymmetries.

There was limited evidence in Terminal Evaluations (for GEF-funded projects already completed) and Annual Performance Reports (for GCF-funded projects still underway) for the projects reviewed about ways in which their interventions increased or decreased women's power to participate. Some interviewed stakeholders expressed a need for more clarity about the ways in which gender mainstreaming can make a difference in reducing GHG emissions, while adaptation projects were seen to offer natural entry points stemming from co-benefits related to community aspects that could be linked to gender. While the reporting on reviewed projects offered little visibility of gender mainstreaming measures that have accelerated technology development and transfer, the relatively slow advance on the gender agenda is a reflection of the diversity of perspectives regarding the relevance and utility of its link with powering climate change action.

Turning to stakeholder engagement, the Parties have long encouraged practices that promote public participation in consultations and decision-making processes related to the Convention, its Kyoto Protocol and Paris Agreement. Working with multistakeholder platforms has been described as essential to transform economic systems at the scale required to drive the uptake of low-carbon and climate-resilient solutions. The high level of stakeholder engagement embedded in the TNA-TAP process was observed as translating into strength to both 'maintain' and 'sustain', drawing on evidence from community involvement programmes established in Caribbean nations that have been used expressly for the purpose of protecting instruments installed in automatic weather stations, even acting to replace batteries when called on. Outreach to educational/vocational actors to build succession capacity was also used as a strategy to assure the continued flow of benefits from technology implementation. Effective public involvement is a key strategic lever to mitigate operational risk as well as tap the financial and non-financial resources of the private sector. The reviewed projects confirm lessons learned about the crucial role stakeholders can play in securing the economic, institutional and social support needed for scaling up technology in a country[4].

It is important to engage the 'right' stakeholders in key steps of project implementation to brainstorm ideas, achieve consensus, and avoid subsequent obstacles; however, the reviewed projects suggests this approach risks assembling a diverse mix of understanding and capabilities. Experience from Lebanon's TNA process showed the power of using a fit-for-purpose, phased approach. Large consultations were initially used to facilitate early-stage brainstorming as these were useful for coming up with "quick wins" and ideas that faced few institutional hurdles, while it was deemed appropriate in subsequent phases to shift engagement from technical experts and academics to bilateral engagement with decision-makers and work on a specific technology, with inputs developed through this collaboration taken forward into enhancing the legal framework.

4 TEC and CTCN (2021), 'Technology and Nationally Determined Contributions: Stimulating the Uptake of Technologies in Support of Nationally Determined Contribution Implementation'

4 Implementation and Scaling-Up

There is shared conviction across stakeholders regarding the value of technology as a key enabler to address climate change. The operating entities of the Financial Mechanism have undertaken visible initiatives to assist developing countries and scale-up the level of investment for technology development and transfer. This is evident in the funding windows created by the GEF under its 2008 Poznan Strategic Programme on technology transfer (PSP) and follow-on mitigation and adaptation projects with technology-related objectives. Furthermore, under the GCF's Readiness and Preparatory Support Program, qualifying countries can receive up to USD 1 million per year for support related to institutional capacity-building, coordination, policy/planning, and programming for investment and up to USD3 million per country for formulating NAPs and/or other adaptation planning processes.

While institutional support for implementation and scaling-up is available, the review of selected projects points to the need to first understand the role of national policy in enabling and hindering technology development and transfer. It was observed that replication and scaling up were more likely if activities in the policy space had led to creating a conducive environment. Furthermore, technology pilots proved more effective and ran more smoothly when they responded to a demand from the users of the technology. Their interest and endorsement exerted an important 'pull', whereas a technology 'push' approach typically weakened relevance for country stakeholders and created difficulty to find partners willing to invest. A stakeholder observed that "for entities that go in and try to change the policy first, that process takes a long time. On the other hand, demand from stakeholders who could benefit from and own the technology tends to accelerate policy change".

Programmatic approaches are a vital approach to achieve the needed global emissions cuts. Deploying approaches that require little adaptation for implementation in additional geographies can galvanize replication, scaling-up, and more systematically spread climate technologies in key sectors. A programmatic approach can create momentum by setting stretch targets; for instance, to get from 50% renewable energy in 2022 to 80% in 2030, from 20% electric car sales in 2022 to 80% in 2030, from 1 million installed heat pumps to 5 million in 2030.

Evidence from the projects review showed that the prospects for technology adoption and replication were heightened if there had been an influence in the policy space leading to a correction of market conditions. Assuming that industry operates in an incentive environment, even if proven technology is available, a stakeholder indicated that "firms will continue with business as usual, unless there are alignment incentives". By extension, the inclusion of appropriate incentives into the enabling environment would logically nudge private sector actors in the direction of climate-resilient, low carbon technologies and mitigation activities. Other shifts in this direction were associated with the training of public agencies that some technologies need special treatment to overcome the 'green premium' barrier associated with technology development and transfer (this was seen in the GEF-funded SolarChill project implemented by UNIDO in Colombia, Kenya, and Swaziland). Loss and damage related to climate technology was not particularly highlighted in the selected set of projects reviewed; however, a GEF-funded project in Jordan pointed out that in the absence of appropriate technical advice, incorrectly applied new irrigation technologies could cause losses on investments made by farmers, thereby decreasing their interest to adopt these technologies.

Successful implementation and scaling-up of technology initiatives depend on absorption capacity. While projects may include capacity-building, the extent to which the provided inputs, technical assistance, and technologies can be absorbed within 3-4 year project timeframes differs across settings. A stakeholder indicated "you need to assess demand based on the ability to absorb technology as well as market size; initiatives for small geographies with limited population are not very meaningful". Where there is no market to commercialize a technology, project experience shows that transferring technology that needs to be developed locally runs the risk that few local people would be able to understand and carry on the work.

The Parties have had a longstanding interest to work effectively with the private sector to support technology development and transfer. Given the difficulty in building the business case and challenges to prove profitability, there is a lack of private finance for adaptation projects for climate technology. While there is a widespread conviction that the private sector is the most significant source of capital for climate-related financing, investors have demonstrated limited appetite to commit to waiting 1-2 years for the project cycles of development actors to run their course. On the other hand, safeguards inserted into these processes, which may slow the pace of design and approval – exist to heighten quality and impact. Project experience in The Bahamas, for instance, pointed to the need to promote dialogue so that the private sector "learns about policy frameworks and government priorities" while public actors "learn about the private sector's motivation to invest" in climate-resilient, low carbon technologies, and mitigation activities as well as the associated risks and barriers.

The potential for private sector support in technology development and transfer has not yet been fully realised. Getting the timing 'right' for engagement, building trust, successfully orchestrating the involvement of private sector actors through compelling value propositions, architecting project and programme contexts that enable agile responses consistent with the dynamism, complexity, and absorption capacity of the recipient environment (e.g. through optimizing project design/approval timelines; adaptive response built directly into project design) have all been identified as levers for effectively engaging private sector actors in climate technology action.

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5 Recommended Actions

1. In order to enhance the **relevance and impact of the support for technology provided by the GCF and GEF**, it is recommended that the COP and the CMA encourage:

    a. Developing country Parties to use UNFCCC mechanisms, like the CTCN, to leverage technical assistance and to support their TNAs, as such mechanisms ensure that there is strong alignment with NDC commitments;

    b. The Technology Mechanism to pursue a balanced focus on equipment and soft aspects of climate technologies (i.e. techniques, practical knowledge and skills, workforce training and development), irrespective of whether technology is transferred or endogenously developed;

    c. The secretariats of the CTCN and operating entities of the Financial Mechanism to collaborate in identifying ways to further streamline the process for facilitating linkages and readiness support for sectoral transformation through climate technologies (e.g. through adopting a more programmatic approach), thereby strengthening proposals and support for building developing country Parties' capacity for undertaking technology-oriented projects;

    d. National designated entities to take the lead in coordinating national technology efforts and in engaging with the focal points of the operating entities of the Financial Mechanism in order to overcome gaps in national-level coordination;

    e. The secretariats of the CTCN and the operating entities of the Financial Mechanism to encourage coordination among relevant focal points for the implementation of climate technology related projects.

2. In order to **accelerate technology-driven progress in limiting global warming and enhancing resilience**, it is recommended that the COP and CMA encourage:

    a. Parties to include considerations related to transformative technologies in priority sectors through their NDCs in pursuing mitigation objectives, to improve systematic and harmonized reporting on the level of adoption towards achieving the purpose and long-term goals of the Paris Agreement, and to strengthen their work on climate-resilient development pathways in pursuing adaptation objectives;

    b. International development entities involved in promoting technology development and transfer to strengthen their promotion of transformative technologies;

    c. The operating entities of the Financial Mechanism and the CTCN, as well as other national and international climate funds, in line with their respective mandates, to consider ways in which transformative technologies in priority sectors and the measurement of their adoption support the long-term goals of the Paris Agreement.

3. In order to **deepen understanding of the concrete ways in which gender mainstreaming and stakeholder engagement – including youth and indigenous people - can play value-added roles in supporting technology development and transfer**, it is recommended that the COP and the CMA encourage:

    a. The operating entities of the Financial Mechanism and the CTCN to encourage their project implementers to pursue approaches that engage the appropriate stakeholders in key steps of project design and implementation and work to deepen national and local ownership to both maintain and sustain technology interventions;

    b. Non-Party stakeholders to enhance reporting on experiences, good practices, and specific measures and strategies that have meaningfully increased women's and men's power to participate in climate technology action;

    c. The operating entities of the Financial Mechanism and the CTCN, through their project design and reporting protocols (e.g. disaggregated data collection on gender in governance structures, stakeholder participation, and documentation of good practice and lessons learned about these dimensions), to continue sharing best practices and building awareness among delivery partners of the positive contributions of gender mainstreaming and stakeholder engagement to accelerate technology development and transfer;

    d. The CTCN and operating entities of the Financial Mechanism to promote gender balance in the technical teams that implement technology projects, in line with fostering women's and girls' full participation and leadership in science, technology, research and development, and to share experience on gender budgeting;

    e. The TEC, the CTCN, and operational entities of the Financial Mechanism to raise awareness of the financial and technical support available to promote gender integration into climate technology policies, plans, strategies and action, as appropriate, including good practices to facilitate access to climate finance for grassroots women's organizations, indigenous peoples and local communities on technology projects.

4. In order to enhance the **likelihood of successful implementation, replication, and scaling-up of initiatives with technology components**, it is recommended that the COP and the CMA encourage:

    a. The TEC and CTCN to propose a programmatic approach for scaling up technology initiatives that focuses on the adoption of policy and standards, based on an analysis of the experience and good practices of the CTCN;

    b. The CTCN to pursue partnerships through the GCF Project Preparation Facility and to explore opportunities to support GEF projects;

    c. NDAs for GCF and NDEs for CTCN to enhance collaboration on the development of programmatic approaches for scaling up technology actions;

    d. Non-Party stakeholders to consider more programmatic approaches where technologies that require little adaptation for implementation in additional settings can be deployed, replicated and used more systematically to spread transformative climate technologies in key sectors.

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Abbreviations and Acronyms

CTCN	Climate Technology Centre and Network
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	greenhouse gas
IADB	Inter-American Development Bank
LDC	least developed country
NAP	national adaptation plan
NDA	national designated authority
NDC	nationally determined contribution
NDE	national designated entity
Parties	Parties to the UN Framework Convention on Climate Change (UNFCCC)
PSP	Poznan strategic programme on technology transfer
PV	(solar) photovoltaics
SIDS	small island developing State(s)
TAP	technology action plan
TEC	Technology Executive Committee
TNA	technology needs assessment
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
USD	US dollar

References

Related to the Technology Mechanism

Decisions of the COP and CMA related to technology development and transfer (COP Decision 4/CP.17 for TEC modalities and procedures) https://unfccc.int/ttclear/negotiations/decisions.html

FCCC/CP/2014/6 Documented submitted: Linkages between the Technology Mechanism and the Financial Mechanism of the Convention: recommendations of the Technology Executive Committee https://unfccc.int/sites/default/files/resource/docs/2014/cop20/eng/06.pdf

TEC/2018/16/7: Updated Paper on Linkages between the TNA and NDC Process https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/tn_meetings/40067a60235c4b1c9737e9abf532003a/e8a0bd09bec44237934ee7ed569b2d9d.pdf

UNFCCC (2019) Paris Agreement Reporting Requirements: Outcomes from COP24, Outlook to COP 25 https://unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.33/2019/mtg4/S1_2_UNFCCC_COP24_25.pdf

UNFCCC (17 September 2021) NDC Synthesis Report https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs/ndc-synthesis-report

Presentation by the GEF into TEC 22 meeting: GEF Support for Technology Transfer https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/tn_meetings/8fd01c60c1114246a64736b75af13701/870af041e1d845fba48da898d14aebe9.pdf

Presentation by the GCF into TEC 22 meeting: GCF Support for Technology Transfer https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/tn_meetings/19cff07af05440fc95602c1fe4bd55c6/166f850ea2db4675a6e4499ce1fb0b46.pdf

Working Paper (2013) by S. Nakhooda: Effectiveness of Climate Finance: A Review of the Global Environment Facility https://cdn.odi.org/media/documents/8632.pdf

Briefing (2015) by S. Barnard and S. Nakhooda: Financing Climate Technology: Lessons from Efforts under the UNFCCC https://cdn.odi.org/media/documents/10053.pdf

TEC Report (April 2019) by A-M. Verbeken: Updated Evaluation of Poznan Strategic Programme on Technology Transfer https://unfccc.int/sites/default/files/resource/7e.pdf

TEC Report (December 2015) by S. Nakhooda: Evaluation of Poznan Strategic Programme on Technology Transfer: Final Report by the Technology Executive Committee https://unfccc.int/resource/docs/2015/sbi/eng/16.pdf

TEC Draft Paper (11 October 2019) Experiences, Lessons Learned and Good Practices in Conducting TNAs https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/tn_meetings/9c6eeaa690534874bbcbb85bada9882c/b566fb9540cd4932b5503a0518d2af94.pdf

Active Technical Assistance Requests to the CTCN (2021) https://www.ctc-n.org/technical-assistance/data

Lee, W. and R. Mwebaza (25 September 2020), Role of Climate Technology Centre and Network as a Climate Technology and Innovation Matchmaker for Developing Countries www.mdpi.com/2071-1050/12/19/7956/htm

IADB (April 2021, Confidential) PSP Regional Report for Update on FY21 Technology Transfer Activities for the GEF Report to COP26 and Good Practice Briefs Review of IADB-Implemented Projects for GEF-5 Replenishment Period related to Climate Change, Mitigation, and Adaptation

United Nations Climate Change Paris Committee on Capacity-Building (PCCB), July 2019 PCCB Strategic Plan for Stakeholder Engagement, Communications and Resource Mobilization https://unfccc.int/documents/198470

and Communication and Stakeholder Engagement Strategies https://unfccc.int/sites/default/files/resource/2021-4%20PCCB%20Communication%20and%20stakeholder%20engagement%20strategies.pdf

UNFCCC (20 August 2021) Report on the Second Independent Review of the Effective Implementation of the Climate Technology Centre and Network https://unfccc.int/sites/default/files/resource/cp2021_3_AV.pdf

Related to the Operating Entities of the Financial Mechanism

GEF's Report to COP26 (30 September 2020) https://www.thegef.org/documents/report-gef-26th-session-cop-unfccc

GEF Annual Reports to COP (2008 to 2021) https://unfccc.int/ttclear/support/poznan-strategic-programme.html

GEF (July 2020) Delivering Transformational Change: The Journey of the Global Environment Facility https://www.thegef.org/publications/delivering-transformational-change-journey-global-environment-facility

GEF Good Practice Brief (2021/2) Senegal: Strengthening Climate Resilience through People Centred Approaches https://www.thegef.org/sites/default/files/publications/GEF_GoodPracticesBriefs_Senegal_r2%20%281%29%20%281%29.pdf

GEF Good Practice Brief (2021/2) Cambodia: Renewable Energy Technology for Smallholder Famers (GEF-6) https://www.thegef.org/publications/good-practice-brief-renewable-energy-technology-smallholder-farmers

GCF Annual Reports to COP (2008 to 2020) https://unfccc.int/ttclear/support/poznan-strategic-programme.html and for 2021 https://www.greenclimate.fund/document/gcf-b29-03

Updated Strategic Plan for the Green Climate Fund: 2020-2023 https://www.greenclimate.fund/document/updated-strategic-plan-green-climate-fund-2020-2023

Presentations by E. Resende (21 June 2019): The GCF and its TNA Related Activities, https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/events_2019_3/4a364c1315884b3990e78356d2dc7f1b/fcbdb8cd7bd647fc9132a0973b0125dc.pdf and (9 Sept 2021) GCF Support to Climate Technologies, TEC23 https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/tn_meetings/d1500c56909f438c84888fc709715c4c/ae04d9c9e736457fab3e7e8aded1b4a7.pdf

GCF's Integrated Results Management Framework (23 February 2021) https://www.greenclimate.fund/sites/default/files/document/gcf-b28-09.pdf

GCF Project Preparation Facility Guidelines (16 October 2020) https://www.greenclimate.fund/sites/default/files/document/ppf-guidelines.pdf

GCF and UN Women (August 2017), Practical Manual for Mainstreaming Gender in Green Climate Fund Projects https://www.greenclimate.fund/sites/default/files/document/guidelines-gcf-toolkit-mainstreaming-gender_0.pdf

GCF Annual Results Report (March 2020): Climate Action During the Pandemic https://www.greenclimate.fund/document/annual-results-report-2020

GCF Spotlight: Least Developed Countries (20 March 2021) Factsheet https://www.greenclimate.fund/sites/default/files/document/gcf-spotlight-ldc_1.pdf

GCF Spotlight: Small Island Development States (20 March 2020) Factsheet https://www.greenclimate.fund/sites/default/files/document/gcf-spotlight-sids_1.pdf

CIF-Climate Investment Funds c/o The World Bank Group (2019) 10th Anniversary Report of Mobilizing Finance for Climate Action https://www.climateinvestmentfunds.org/knowledge-documents/10-years-climate-action

CIF (May 2021) FY21 Progress Report on Implementation of CIF Gender Action Plan Phase 3 https://www.cif.org/sites/cif_enc/files/meeting-documents/gender_fy21_progress_report_cif_gender_action_plan_phase_3_joint_tfc_meeting_23_june_2021.pdf

Related to Implementing Agencies of the Financial Mechanism's Operating Entities

UNIDO (October 2019) Impact Evaluation of UNIDO's Industrial Energy Efficiency programme Volume 1 https://www.unido.org/sites/default/files/files/2019-11/E-Book%20IEE%20Impact%20Evaluation.pdf

UNIDO (February 2021), Thematic Synthesis of Independent Evaluations of UNIDO Renewable Energy Projects from 2016-2020 https://www.unido.org/sites/default/files/files/2021-06/Thematic%20Synthesis_UNIDO%20Renewable%20Energy%20Evaluations%202016-2020_210406.pdf

UNEP DTU Partnership (June 2019) How to Transfer, Finance and Implement Climate Technology https://unepccc.org/how-to-transfer-finance-and-implement-climate-technology/

Global Gender and Climate Alliance (GGCA) and UNDP (2013) Policy Brief: Linkages between Gender and Climate Change www.undp.org/sites/g/files/zskgke326/files/publications/PB1-AP-Overview-Gender-and-climate-change.pdf

Other Resources

World Resources Institute and ClimateWorks Foundation (2021), State of Climate Action: Assessing Progress Toward 2030 and 2050 https://files.wri.org/d8/s3fs-public/2021-09/state_climate_action.pdf?VersionId=Rw2ZmL1HWNSg4z4iZGYz.SdTmn59xvlS

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TEC

About the Technology Executive Committee

The Technology Executive Committee is the policy component of the Technology Mechanism, which was established by the Conference of the Parties in 2010 to facilitate the implementation of enhanced action on climate technology development and transfer. The TEC analyses climate technology issues and develops policies that can accelerate the development and transfer of low-emission and climate resilient technologies.

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