



**Technology Executive Committee**

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## **Experiences, lessons learned and good practices from GCF and GEF's support for technology**

### **Cover note**

#### **I. Background**

1. As per activity 5 of the thematic area of Support of its workplan for 2019–2022, the TEC is to undertake an analysis of the experiences, lessons learned and good practices from GCF/GEF's support for technology, with a view to enhancing collaboration with the Financial Mechanism.
2. At TEC 22, the TEC considered a concept note,<sup>1</sup> prepared by the task force on support, on experiences and lessons learned from support for climate technologies provided by the operating entities of the Financial Mechanism and provided guidance to the task force on support for preparing the technical paper.

#### **II. Scope of the note**

3. The annex to this note contains the draft technical paper on experiences and lessons learned from support for climate technologies provided by the operating entities of the Financial Mechanism, prepared by the TEC task force on support.

#### **III. Expected action by the Technology Executive Committee**

4. The TEC will be invited to consider the draft technical paper and provide guidance to the Support taskforce for further improvement and finalization of the technical paper after TEC 23.

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<sup>1</sup> Available at <https://bit.ly/3sLXRep>.

## **Annex**

**Draft technical paper on experiences and lessons learned from support for climate technologies provided by the operating entities of the Financial Mechanism**

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## Disclaimer

This Technical Paper draws on the experience of relevant projects funded by the GEF and the GCF. Due to the infancy of GCF-supported projects, many of which are still in early stage implementation with only recent annual project performance reports available that focus on achievement of outputs (which contain limited, if any, discussion of lessons learned), there is an over-representation of examples and citations from GEF-supported projects, the bulk of which have been completed or are near completion (with independently prepared Terminal Evaluations and Mid-Term Reviews available as evidence, together with explicit lessons learned and recommendations).

The TEC has not quality-assured or fact-checked the statements by informants. The statements quoted in this Technical Paper are not expressions of the views of the TEC nor endorsed by the TEC. UNEP-DTU, the GEF, and the GCF have been or will be given the opportunity to reply to the statements.

## Acronyms and Abbreviations

ADB	Asian Development Bank
AE(s)	Accredited Entity(ies)
AfDB	African Development Bank
CO <sub>2</sub>	Carbon dioxide
COP	Conference of the Parties (to the UNFCCC)
CSO(s)	Civil Society Organization(s)
CTCN	Climate Technology Centre and Network
EBRD	European Bank for Reconstruction and Development
EE	Energy efficiency
EST	Environmentally Sound Technology
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse gas
ICT	Information and Communications Technology
IDB	Inter-American Development Bank
(I)NDC	(Intended) Nationally Determined Contribution
IP(R)	Intellectual property (rights)
LDC	Least Developed Country
MDB	Multilateral Development Bank
MTR	Mid-Term Review
NDA	Nationally Designated Authority
NDE	Nationally Designated Entity
NGO(s)	Non-governmental organisation(s)
Parties	Means Parties to the UN Framework Convention on Climate Change (UNFCCC)
PCCB	Paris Committee on Capacity-Building
PSP	Poznan Strategic Programme on technology transfer
PV	(Solar) Photovoltaics
RE	Renewable energy
RPSP	Readiness Preparatory Support Programme
SCCF	Special Climate Change Fund
SDGs	Sustainable Development Goals
SIDS	Small Island Developing States
STAR	(GEF's) System for the Transparent Allocation of Resources
TE	Terminal Evaluation (of a project or programme)
TEC	Technology Executive Committee
TNA	Technology Needs Assessment
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organisation
USD	US dollar



## 1 Background

### 1.1 Mandate

- 1) The Technology Framework under Article 10 of the Paris Agreement, adopted in Katowice, includes amongst activities to be undertaken by the TEC and CTCN related to: (i) collaboration of the Technology Mechanism with the Financial Mechanism for enhanced support for technology development and transfer; and (ii) providing enhanced technical support to developing country Parties, in a country-driven manner, and facilitating their access to financing for innovation, including for R&D, enabling environments and capacity-building, developing and implementing the results of TNA, and engagement and collaboration with stakeholders, including organizational and institutional support. In this context, the TEC in its rolling workplan for 2019-2022 agreed to undertake an analysis of the experiences, lessons learned and good practises from GCF and GEF's support for technology. This Technical Paper has been prepared in the context of the TEC's rolling workplan for 2019-2022.<sup>1</sup>It follows a Concept Paper for preparing this Technical Paper developed by TEC22<sup>2</sup>.
- 2) This Technical Paper builds on two earlier initiatives mandated by the UNFCCC/TEC to review support for technology development and transfer<sup>3</sup> and finance provided in relation to the Poznan Strategic Programme (PSP; see ¶19): a) In 2015 – analysis of PSP's relevance, effectiveness, and efficiency in meeting Party needs and its prospects for modelling effective change<sup>4</sup>; b) In 2019 –update of the initial review, based on availability of Mid-Term Review (MTR) reports, which were the key source of information for the assessment<sup>5</sup>.
- 3) Prepared as an input to the TEC's upcoming meeting (TEC23, 6-10 September 2021) with the aim of informing and inspiring the reflections of committee members, this Technical Paper can furthermore be used to provide a foundation for the subsequent preparation of a Policy Brief and recommendations to the COP/CMA (scheduled for 2022), the UNFCCC's supreme decision-making body.
- 4) In updating the 2019 PSP review, this Technical Paper uses six lenses (reflected in Chapter 3's structure) to distil the experience, good practices, and lessons learned from the support for climate technologies provided by the Financial Mechanism's Operating Entities, with a view to enhance operation of the Technology Mechanism and collaboration between the Technology Mechanism and the Financial Mechanism.

### 1.2 Scope and Methodology

- 5) Following the ToR's guidance, the scope of the Technical Paper's review reflects:
  - Support provided by the Financial Mechanism's Operating Entities: under relevant replenishment cycles, for climate technologies related to PSP implementation (GEF) and climate change projects with technology elements (GCF);
  - GCF readiness support with a focus on those projects using the Technology Mechanism's operational arm, i.e. the Climate Technology Centre and Network (CTCN), as delivery partner;
  - Projects for which Terminal Evaluations (TEs), Mid-Term Reviews (MTRs), or recent reporting was available (as opposed to initiatives that are still at the planning stage or in initial implementation);
  - Support provided to the most vulnerable countries, including Least Developed Countries (LDCs<sup>6</sup>) and Small Island Developing States (SIDS<sup>7</sup>).

<sup>1</sup> The TEC extends its appreciation to Dr. Joyce Miller for her support in developing this Technical Paper. Appreciation is also extended to representatives of observer organizations participating in the TEC Task Force for the inputs provided throughout its preparation.

<sup>2</sup> [https://unfccc.int/ttclear/misc/\\_StaticFiles/gnwoerk\\_static/tn\\_meetings/954b204c918f45629fcac696f7c0341d/8973108d71eb4d20b3d570eff56026e3.pdf](https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/tn_meetings/954b204c918f45629fcac696f7c0341d/8973108d71eb4d20b3d570eff56026e3.pdf)

<sup>3</sup> References to dissemination of technology transfer of, or access to, technology are to voluntary technology transfer of mutually-agreed terms

<sup>4</sup> TEC (December 2015) by S. Nakhooda: Evaluation of the Poznan Strategic Programme on Technology Transfer: Final Report by the Technology Executive Committee <https://unfccc.int/resource/docs/2015/sbi/eng/16.pdf>

<sup>5</sup> TEC Report (April 2019) by A.M. Verbeken: Updated Evaluation of the Poznan Strategic Programme on Technology Transfer <https://unfccc.int/sites/default/files/resource/7e.pdf>

<sup>6</sup> The list of LDCs (as of 11 February 2021) is drawn from this source: [https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/ldc\\_list.pdf](https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/ldc_list.pdf)

<sup>7</sup> The list of SIDS is drawn from this source: <https://www.un.org/ohrrls/content/list-sids>

- 6) This Technical Paper was developed using an evidence-based approach with robust analytical underpinning. Mainly qualitative data was used to develop insights into Relevance, Effectiveness, Impact, Mainstreaming of Gender, Stakeholder Engagement, Sustainability of Results, Potential for Replication and Scaling-up as well as fundamental strengths, shortfalls, enabling conditions, and key challenges related to accelerating action on climate change through the provision of support for climate technologies. While the number of informants interviewed was limited, their selection was highly considered with the aim of drawing on illustrative, insightful, and provocative perspectives to deepen and advance understanding of the questions posed. Their input is considered as core evidence and therefore frequently cited verbatim to give flesh to and convey the findings. Please note that the over-representation in the evidence cited of GEF-funded experiences reflects the fact that most PSP-related projects have reached completion, with independent assessment available (e.g. TEs, MTRs) while the GCF-funded projects considered in this review are mostly in their infancy, without independent assessment available. The project progress reports made available to the Consultant tend to focus on achievement of activities/outputs and their risks/barriers, not highlighting lessons learned and good practices.
- 7) To anchor and triangulate the findings, data was drawn from varied sources:
- **Interviews:** with 17 stakeholders (see **Annex 1**) representing perspectives from the Technology Mechanism (CTCN, TEC), the Financial Mechanism's Operating Entities, their Implementing Agencies, GCF Accredited Entities (AEs), Multilateral Development Banks (MDBs), national-level recipients of support provided by the Operating Entities (represented by GEF Operational Focal Points, Nationally Designated Authorities (NDAs), Nationally-Designated Entities (NDEs), and independent consultants with relevant contributions;
  - **Desk review:** of key documentation supplied by the UNFCCC Secretariat, including previous reviews of the PSP; Operating Entities' presentations to the TEC; Operating Entities' annual reports submitted to the COP; recent annual reports of the GEF and GCF; relevant programming directions of the GEF and GCF; project preparation guidelines, working papers, policy briefs, factsheets, technical papers, etc. See **Annex 2**.
- A total of 42 projects were included in this review, using the following documentation:
- **GEF Evaluation Reports:** 18 projects were identified as relevant for the scope of this inquiry. The latest evaluation report (be that a TE or MTR) was used as the primary data source<sup>8</sup>;
  - **GCF Annual Performance Reports** (only for 2019): 24 projects were identified as relevant, i.e. providing support for climate technologies through GCF's climate change portfolio (11 in LDCs, 4 in SIDS) and its readiness programme (6 in LDCs, 3 in SIDS), with CTCN as the delivery partner.
- 8) Interviews were carried out remotely, supported by a protocol (see **Annex 3**). To preserve the integrity of the process and enhance freedom of expression, informants were: i) assured of the confidentiality of their input; ii) engaged in a manner that promoted balanced reflection, using a retrospective lens; iii) stimulated to identify unaddressed needs, potential areas for future focus, and contextually-relevant recommendations. The adopted approach sought to build appreciation of different ways to view the performance of the Operating Entities' support, which was used to facilitate triangulation and develop evidence-based findings.

<sup>8</sup> The GEF reported to TEC22 (20-23 April 2021) the latest status regarding its long-term plan for implementing the PSP according to its 5 elements:

i) **Climate Technology Centres and Climate Technology Network**

➤ As part of this, GEF supported a CTCN sub-project, implemented by UNIDO, described as "operationalising linkages between the Technology and Financial Mechanisms under the Climate Convention, and "a response to COP decisions on the matter" (p2, UNIDO GEF Annual Monitoring Report FY 2018, referring to COP decision 1/CP.16)

➤ Supported projects implemented by MDBs, related to 4 regional centres: Africa [hosted by African Development Bank (AfDB)], Asia and Pacific [established by Asian Development Bank (ADB) and UNEP], Latin America and Caribbean hosted by Inter-American Development Bank (IDB); Eastern Europe and Central Asia [hosted by European Bank for Reconstruction and Development (EBRD)]  
**Project Status:** 3 closed; 2 extended: AfDB's ACTFCN to complete in July 2022; EBRD's FINTECC to complete in December 2022

ii) **Piloting technology projects**

➤ 14 pilot projects supporting technology transfer have been implemented with respect to:

*Mitigation:* renewable energy, energy efficiency, transport, composting)

*Adaptation:* irrigation, flood- and drought-resistant crops, sustainable land practices

**Project Status:** 8 closed; 3 still under implementation, 3 cancelled

iii) **Technology needs assessments**

➤ 4 phases of TNA global project have been funded with ~USD 27 million in 100+ countries

iv) **Public-private partnership for technology transfer. No status reported**

v) **GEF as a catalytic supporting institution for technology transfer. No status reported**



Such an approach is designed to generate credibility for the findings and orient stakeholders' interest to take ownership for the Technical Paper's findings, conclusions, and key messages.

## 2 Financial Mechanism's Operating Entities' Support for Climate Technologies

### 2.1 GEF's Support for Technology Transfer.

- 9) Following the COP13 (Bali, 2007) request to scale-up investment for technology transfer to assist developing countries in addressing their needs with respect to technology development and transfer, the GEF established the PSP in 2008, operationalised through three funding windows; for: i) TNA; ii) pilot priority technology projects linked to TNA; and iii) dissemination of GEF's experience and successfully demonstrated Environmentally-Sound Technologies (ESTs). An informant observed, "it is a well-known and common understanding that if we really want to address climate change, then technology is a key instrument".
- 10) Serving as an Operating Entity of the Financial Mechanism since the UNFCCC entered into force in 1994, the GEF funded the PSP under its 4<sup>th</sup> replenishment cycle (GEF-4) with USD 50 million; the bulk (USD 30 million) came from GEF Trust Fund country allocations, USD 5 million from GEF Trust Fund set-aside, USD 15 million from the Special Climate Change Fund (SCCF), complemented by USD 228.8 million in co-financing<sup>9</sup>.
- 11) The PSP's long-term implementation has been funded under GEF-5/6/7, with all mitigation and adaptation projects with technology-related objectives considered to be part of the PSP. Moving forward, the GEF decided to mainstream its support for technology and did not set aside funding for the PSP within its replenishment cycles, nor does the PSP form part of the replenishment period strategies. The GEF funds each element of the PSP through country allocations under the system for the transparent allocation of resources (STAR) for mitigation projects and under global and cross-focal area set-asides for TNA global projects and public-private partnerships (PPPs). GEF's reporting to the COP characterizes its entire climate change portfolio as supporting technology transfer<sup>10</sup>.
- 12) The transfer of low-emission and climate-resilient technology has been a key cross-cutting theme for the GEF since its establishment, building on the notion that "technology transfer and innovation are key enablers of sustainable development for LDCs", according to GEF's latest briefing to the TEC (April 2021)<sup>11</sup>. The GEF-7 replenishment package adopted in June 2018 contained a climate change mitigation funding envelope of USD 802 million (of the total USD 4.1 billion replenishment package), USD 291 million in set aside to finance EAs, CBIT, Integrated Programming (Impact Programs), with USD 18 million allocated for regional/global projects.

### 2.2 GCF's Support for Technology Transfer

- 13) Adopted at the end of 2011 as an Operating Entity of the Financial Mechanism, GCF shares a commitment with the GEF to "address the climate emergency and support developing countries to raise and realise their climate ambitions in service to the Paris Agreement"<sup>12</sup>. In the context of sustainable development, GCF promotes paradigm shift towards low-emission, climate-resilient development pathways by providing support to developing countries to limit or reduce their GHG emissions and adapt to the impacts of climate change, taking into account the needs of those developing countries particularly vulnerable to the adverse effects of climate change<sup>13</sup>. Accordingly, GCF provides support through its Readiness Preparatory Support Programme (RPSP)<sup>14</sup> and its climate change portfolio. The former refers to a process for accessing funding that begins from assessing

<sup>9</sup> TEC PSP Review (December 2015) by S. Nakhoda <https://unfccc.int/resource/docs/2015/sbi/eng/16.pdf> refers to the Technology Framework adopted by COP7. The more recent reference to the Technology Framework adopted by COP24/CMA1 (Decision 15/CMA1) is also relevant.

<sup>10</sup> As defined by Intergovernmental Panel on Climate Change (IPCC) and the technology transfer framework adopted by COP7 (Decision 4/CP.7), as cited in GEF's Report to COP26 (30 September 2020) <https://www.thegef.org/documents/report-gef-26th-session-cop-unfccc>

<sup>11</sup> Presentation by the GEF into TEC 22 meeting: GEF Support for Technology Transfer [https://unfccc.int/ttclear/misc/\\_StaticFiles/gnwoerk\\_static/tn\\_meetings/8fd01c60c1114246a64736b75af13701/870af041e1d845fba48da898d14aeb9.pdf](https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/tn_meetings/8fd01c60c1114246a64736b75af13701/870af041e1d845fba48da898d14aeb9.pdf)

<sup>12</sup> From GCF's self-description drawn from <https://www.facebook.com/GCFOfficial/posts/2537041382997871:0>

<sup>13</sup> p2, GCF's Governing Instrument <https://www.greenclimate.fund/sites/default/files/document/governing-instrument.pdf>

<sup>14</sup> <https://www.greenclimate.fund/readiness/process>

Continued...

- a country's technology needs, including, but not limited to, technology development and transfer, led by a Nationally Designated Authority (NDA). The latter consists of projects whose investments are characterized as "intending to support paradigm shifts in both mitigation and adaptation"<sup>15</sup>.
- 14) The GCF pursues its transformational goal by investing in four transitions (energy and industry; human security, livelihoods and well-being; the built environment; and land-use, forests and ecosystems), through 4 prongs<sup>16</sup>:
- Transformational planning and programming: by promoting integrated strategies, planning and policymaking to maximise the co-benefits between mitigation, adaptation and sustainable development;
  - Catalysing climate innovation: by investing in new technologies, business models, and practices to establish a proof of concept;
  - De-risking investment to mobilize finance at scale: by using scarce public resources to improve the risk-reward profile of low emission climate resilient investment and crowd-in private finance, notably for adaptation, nature-based solutions, LDCs and SIDS;
  - Mainstreaming climate risks/opportunities into investment decisions: to align finance with sustainable development by promoting methodologies, standards, and practices that foster new norms and values.
- 15) As at 30 April 2021<sup>17</sup>, the GCF had approved 173 projects representing USD 8.3 billion in GCF funding, with USD 21.9 billion of co-financing mobilized. These approved projects and programmes were expected to abate 1.8 billion tonnes of carbon dioxide equivalent of GHG emissions and reach 149 million direct and 349 million indirect beneficiaries, based on estimates provided by GCF's accredited entities (AEs). Private and public sectors accounted for 33% and 67% of the GCF funding, respectively. GCF's portfolio allocation stands in grant equivalent terms at 48% for adaptation (USD 2.8 billion) and 52% (USD 2.6 billion) for mitigation. It had received 30 readiness requests submitted by NDAs and focal points with CTCN as delivery partner. Of these, 24 were approved, representing USD 7.6 million. By the time of GCF's 2021 briefing to TEC 22, 40 readiness support for technology requests had been approved, representing USD 19.4 million, to be implemented in Africa (17), Asia-Pacific (3), Latin America and Caribbean (8) with delivery partners: UNEP-CTCN (16), UNIDO-CTCN (9), UNEP (2), and UNIDO (1)<sup>18</sup>.
- 16) In strengthening knowledge management, the GCF had developed an internal taxonomy tool, which is used to continuously scan its entire portfolio; for example, the tool identifies which technology elements have been approved by its Board. A recent scan identified 285 technology-related terms, with about 65% of approved funding proposals with technology relevance. Within this, Mitigation accounts for a 43% share; Adaptation, 30%; Cross-Cutting, 35%.
- 17) In summary, both Operating Entities are endeavouring to rise to the challenge, offering strategic support to developing countries to limit and reduce GHG emissions and helping vulnerable societies adapt to unavoidable impacts of climate change. This is evident in the ambition level, scope, and system-level and integrated approaches reflected in their programming directions<sup>19</sup>, in the case of the GEF, and the Updated Strategic Plan (USP)<sup>20</sup> of the GCF.

### 3 Lessons Learned from Project Implementation

- 18) The experience, good practices, and lessons from support for climate technologies (especially to LDCs and SIDS) provided by the Financial Mechanism's Operating Entities have been distilled using six lenses to view the ways in which the CTCN, regional centres, and pilot projects supported under the PSP (funded by GEF) and the readiness support programme and projects with technology elements funded by GCF have contributed to

<sup>15</sup> <https://www.greenclimate.fund/projects>

<sup>16</sup> <https://www.greenclimate.fund/about>

<sup>17</sup> According to GCF's Tenth Report to the COP (25 June 2021) <https://www.greenclimate.fund/document/gcf-b29-03-add01>

<sup>18</sup> [https://unfccc.int/ttclear/misc/\\_StaticFiles/gnwoerk\\_static/tn\\_meetings/19cff07af05440fc95602c1fe4bd55c6/166f850ea2db4675a6e4499ce1fb0b46.pdf](https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/tn_meetings/19cff07af05440fc95602c1fe4bd55c6/166f850ea2db4675a6e4499ce1fb0b46.pdf)

<sup>19</sup> [https://www.thegef.org/sites/default/files/council-meeting-documents/2021\\_04\\_22\\_First\\_Meeting\\_GEF-8\\_PD's\\_Presentation.pdf](https://www.thegef.org/sites/default/files/council-meeting-documents/2021_04_22_First_Meeting_GEF-8_PD's_Presentation.pdf)

<sup>20</sup> <https://www.greenclimate.fund/document/updated-strategic-plan-green-climate-fund-2020-2023>

scaling up the level of investment in climate technologies.

### 3.1 Relevance and Impact of Support Provided

#### Climate Technology Centre and Network (CTCN)

- 19) As the implementation arm of the Technology Mechanism, with support from multiple (mainly bilateral) sources, the CTCN is hosted by UNEP and UNIDO and accountable to the COP through the Advisory Board of the CTCN. A GEF-supported, UNIDO-implemented CTCN-sub project, *Promoting Accelerated Transfer and Scaled-up Deployment of Mitigation Technologies through the CTCN*, was approved in June 2015 with USD 1.8 million in GEF grant funds and USD 7.2 million in co-financing. It reached completion in December 2020.
- 20) According to the TEC’s 2019 PSP Review, the CTCN and pilot regional centres operate as “project accelerators” for technology development and transfer and “builders of a climate innovation system” – connecting climate/finance/policy actors, technology, creating synergies, supporting capacity development, and catalysing learning and knowledge. The added value of this demand-driven mechanism, “which has institutional legitimacy under the UNFCCC, is recognized by stakeholders, as are its strong sectoral expertise, agility and responsiveness, and strength in filling a gap by supporting small projects, without any competition from similar centres or initiatives”<sup>21</sup>. The CTCN actively maintains a ‘red thread’ to the country’s NDC through provisions contained in technical assistance (TA) requests. For countries to be eligible for this support, they need to explicitly demonstrate alignment with national plans and NDCs, as formalized in the TA request form. It is understood that GEF-7 PIFs ask the question, “how will this be relevant for the country’s NDC and national communications?”. Where not described, this gets flagged in the project design review as part of oversight.
- 21) In GEF’s Report to COP26, it affirmed there is significant demand from developing countries for CTCN services (reflected by the increasing number of TA requests – which is seen as complementary to other mechanisms/initiatives), asserting that the CTCN contributes to early-stage support of technology development and transfer<sup>22</sup>. Informants identified further assets of the CTCN in its ability “to be fast and provide tailored hand-holding”, and “be more risk-prone” due to dealing with relatively small sums (compared to GEF, GCF). An informant felt these aspects could be further enriched by adopting a broader experimental setting, equating this to “being risk prone”, “doing more things of lower value than fewer things of higher value” and making the CTCN an “even more forceful and persuasive advocate of capacity-building, networking, cheerleading, and institutional strengthening” that forms the basis for effective technology transfer and use. Other informants mentioned that that “it would be nice to see stronger ties” between the GEF and the CTCN.
- 22) In terms of on-the-ground learning from CTCN’s operations, the review of GCF-funded readiness support:
- Shows 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 TA, has been a valuable capacity-building approach – as seen in The Bahamas with developing a national-level Monitoring, Reporting and Verification System (MRVS) for tracking climate finance inflows and public expenditures; in Mauritius, for the vulnerability assessment of the Port of St. Louis to build its resilience to climate change effects; in Myanmar, for strengthening drought and flood management through a web-based portal to facilitate adaptation to climate variability; and in Timor-Leste, where TA provided through the CTCN extended the use of solar photovoltaics (PV) in remote areas.
  - Demonstrates the synergy that can be realised through adopting a programmatic approach, illustrated by the “National Framework for Leapfrogging to Energy Efficient Appliances and Equipment” implemented through readiness support simultaneously launched in 3 geographies (Lesotho, Malawi, Zambia). Approaches that work in Country A, then work in others with minor adjustment, are key to scaling up

<sup>21</sup> P18, ¶61(a) EY & Associés (20 August 2021, Advance Version) 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](https://unfccc.int/sites/default/files/resource/cp2021_3_AV.pdf)

<sup>22</sup> GEF Report to COP26 (30 September 2020), p117 <https://www.thegef.org/documents/report-gef-26th-session-cop-unfccc>

action on technology development and transfer. Another asserted that such a ‘cookie-cutter’ approach, combined with the inherent opportunity to crowd-in intelligence into the same topic, is highly worthwhile for driving impact.

- Suggests that CTCN activities have systemic impact that inform, shape, and influence the NDC, NAPs, and other national climate strategies and plans. The recent independent review of the CTCN indicates that while its interventions trigger systemic change, this is not instantaneously visible. While a new monitoring and evaluation system is expected to help capture CTCN impacts, there is still no clear timeline or intermediary steps for realising the envisaged outcomes<sup>23</sup>.
- 23) However, national level coordination needs to be improved, particularly in light of initiatives that generate the creation of even more touch points; informants mentioned current discussion about creating focal points for the Santiago Network on Loss and Damage as well as the NDC Partnership Focal Points that have been created, described as “working on their own and trying to coordinate with everyone”. In countries where focal points share the same hats and/or sit in the same ministry”, informants reported that “it is more effective”. Reaching back to 2015<sup>24</sup>, a recommendation was already put forward to the TEC to encourage countries to strengthen links between focal points of the various national entities on the landscape, with a clear suggestion that the NDE should play a role in coordinated national technology efforts and engaging with the focal points of the Financial Mechanism’s Operating Entities. Another idea mentioned was that the NDE must be seen as a National Centre of Excellence for Technology for development, not restricted to climate change and not just for the CTCN or for the Technology Mechanism, reflecting the embedding of climate change within development and system-level notions (¶71).
- 24) While the programmatic approach illustrated with the above-mentioned field examples could provide ground for the CTCN’s national-level focal points (NDEs) to exchange experiences across countries, many stakeholders interviewed for this Technical Paper identified that a bigger gap still exists in the limited collaborative work between NDEs, (CTCN) Network Members, GEF Operational Focal Points, and GCF NDAs (although reportedly to a lesser extent with the latter, thanks to the increased number of CTCN readiness projects). This was explained by different strategic views and limited interpersonal knowledge (partly attributable to administrative turnover), despite networking events organised by the CTCN. Considering its broad scope of services, one of CTCN’s main challenges to ensure effective collaboration has been attributed to its limited financial resources.

### Regional Climate Technology Centres

- 25) GEF provided USD40 million under its 5<sup>th</sup> replenishment cycle for 4 regional pilots to generate learning to inform the Technology Mechanism and the CTCN, and to facilitate cooperation on technology development and transfer (see **Table 1**).

**Table 1: GEF-Funded Pilot Projects for Regional Climate Technology and Finance Centres**

Project	Region	Implementing Agency	GEF Trust Fund (USD million)	GEF Special Climate Change Fund (USD million)	Co-financing (USD million)
Pilot Asia-Pacific Climate Technology Network and Finance Centre (AP-CTNFC)	Asia and Pacific	ADB and UNEP	10.0	2.0	74.7
Pilot African Climate Technology Finance Centre and Network (ACTFCN)	Africa	AfDB	10.0	5.8	89.0
Finance and Technology Transfer Centre for Climate Change (FINTECC)	Europe and Central Asia	EBRD	10.0	2.0	77.0
Climate Technology Transfer Mechanisms and Networks in Latin America and the Caribbean	Latin America and the Caribbean	IDB	10.0	2.0	63.4

Source: GEF Report (13 November 2015) to the COP on Collaboration between CTCN and Regional Technology Transfer and Finance Centres

<sup>23</sup> Ibid, pp14-15, Described under Impacts and Sustainability

<sup>24</sup> p26, paragraph 97(d) TEC Report (December 2015) by S. Nakhooda: Evaluation of the Poznan Strategic Programme on Technology Transfer: Final Report by the Technology Executive Committee <https://unfccc.int/resource/docs/2015/sbi/eng/16.pdf>

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- 26) While reflecting a common underlying concept, these Regional Centres differ in scope and implementation modality, reflecting the varying approaches and capacities of the implementing entities (MDBs were asked to host these Centres, with a view “to harness their investment capacity” in their respective regions<sup>25</sup>). Through these projects a range of measures were rolled out to support mitigation activities, primarily in the Energy Sector, while also supporting adaptation-related technology transfer, particularly in the Water Sector. The ADB- (with UNEP) and EBRD-supported centres prioritized working with the private sector, while the AfDB- and IDB-supported initiatives put the emphasis on public sector investment.<sup>26</sup> An informant confirmed, “these initiatives triggered a purpose; that was the objective. It’s not about whether the Centre is working, or not. The biggest achievement is that the ideas have been mainstreamed into the Banks’ daily operations”.
- 27) The ADB-UNEP pilot in Asia-Pacific was the first to launch. Conceived with a notion to “*promote innovation and catalyze finance on a continuum*”<sup>27</sup>, the AP-CTNFC project set out to test an approach whereby UNEP was to provide capacity building, TA, and policy advice to enhance the enabling environment for market transformation while ADB was to facilitate financial investment. Together, this was expected to accelerate the adoption, deployment, and investment in climate mitigation and adaptation technologies. The extent to which this structure did hasten uptake of ESTs could not be determined through the TE (conducted in 2020)<sup>28</sup>. GEF’s Report COP26 acknowledged that “substantive joint work needs to be backed up by strong orientation and prioritization, as well as supported by relevant management and supervisory structures, together with incentives and enforcement”<sup>29</sup>. Informants indicated that such a project “triggered a purpose; it’s not about whether the Centre is working. It’s about whether MDBs can integrate the key ideas into their daily operations”. In providing TA services to ADB’s operational departments, this project indeed helped to mainstream new climate technologies into the Bank’s regular public sector operations. Now, all lending proposals in East Asia are obliged to undergo a screening to assess the extent to which they enhance resilience, contribute to adaptation, reduce GHGs, and have an innovative design (i.e. “include a better technology compared to the baseline”). Furthermore, the USD 6 million of internal funds set aside to continue internal TA services is evidence that the project’s benefits will be sustained.
- 28) AfDB’s ACTFCN covering sub-Saharan Africa was extended for a third time, until July 2021 (reflecting institutional challenges in the set-up phase and effects from the Bank’s restructuring), with another year anticipated to fully disburse project funds. AfDB’s strategy of focussing mitigation resources exclusively on the Energy Sector, aligned with the Sustainable Energy for All initiative (SEforALL), has yielded excellent results, with most (90%) of the provided resources disbursed (attributed to “occurring at the beginning of the project cycle, at strategic level” and seen as “yielding good and much-needed benefits, like access to energy”), although arguably, there is quite a distance to go from the prospectuses prepared by the Bank and actually achieving access to energy. This project’s efforts to mobilize added financing through an AfDB-managed instrument, Sustainable Energy Fund for Africa (SEFA), demonstrates an approach to building the enabling environment for mitigation activities and “bringing some investments all the way to financial close”, which reportedly then provides the potential for capitalizing on other funds, thereby increasing the likelihood that technology transfer will actually take place. Through this architecture, AfDB/ACTFCN has used TA grants to fund studies in Zimbabwe, Democratic Republic of Congo, Kenya, and Lesotho that helped agree legal and procurement issues and improve the quality of environmental and impact assessment (e.g. for solar PV), with “actual investments taking place on the ground going into mitigation”, although an external assessment has yet to verify these

<sup>25</sup> GEF’s intention was characterized in this light (p10, paragraph 25) in the TEC’s 2015 PSP Review, Report by S. Nakhoda, <https://unfccc.int/resource/docs/2015/sbi/eng/16.pdf>

<sup>26</sup> Documented in TEC’s 2015 PSP Review: p10, paragraph 24

<sup>27</sup> Characterization of the project’s innovative quality by a key respondent interview conducted by the Consultant, 14 November 2019

<sup>28</sup> A key finding of this project’s TE (p13) <https://wedocs.unep.org/handle/20.500.11822/32547> was that no resources were allocated for joint design and preparation and no attempt was made at the project’s inception to establish a common management structure that would incline regular interaction and joint implementation, indicating that enhanced GEF supervision was needed to more strongly signal, orient, and prioritize the collaboration

<sup>29</sup> GEF Annual Report to the COP (30 September 2020), p125 <https://www.thegef.org/documents/report-gef-26th-session-cop-unfccc>

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results. AfDB's internal trust fund (Africa Climate Change Fund<sup>30</sup>) was portrayed by informants as building the capacity of African countries to access climate and energy funding.

- 29) While informants pointed to positive effects from enhancing networks and knowledge transfer across countries that benefitted from AfDB/ACTFCN activities, disbursements for adaptation (which were mainstreamed into the Bank's regular operations, with a focus on policy reform and Water Sector<sup>31</sup>) have lagged (due to "difficulty in defining what is adaptation and its benefits", "requiring a certain (lacking) skillset for measuring"). Another facet of the challenge is that financiers in MDBs are presumably driven by profitability objectives, whereas adaptation is oriented towards improving livelihoods and well-being; in this context, these represent domains where it has traditionally been more difficult to make a business case for investment. Observing the consequent hesitation to venture into adaptation-related activities, an interviewee asserted, "we should make a link between mitigation and adaptation".
- 30) EBRD's FINTECC (covering 17 economies in transition in Europe/Central Asia) is positioned as enabling the Bank "to invest in sustainable projects that improve living conditions and economic opportunities"<sup>32</sup>. Prioritizing engagement with Energy Ministries and Water Agencies, FINTECC offers TA and incentive grants that complement EBRD financing. The project's MTR (2017) asserted that (p14) "largescale transfer of technologies has a critical role to play in the global response to climate change challenges" and that "local capacity in much of the Region reflects the Soviet legacy of strong engineering skills, thereby providing fertile ground for such technology uptake". GEF's Report to COP26 conveys conviction in the power of its incentive grants. The project runs until December 2022, at which time, its TE may provide independent verification of the effectiveness of EBRD/FINTECC's strategy.
- 31) IDB's approach for Latin America and the Caribbean followed a different path: working with existing institutions (therefore mostly outside the Bank's operations) covering different sectors and working on policy with Ministries and Offices of Science, Technology and Climate Change in the region. Participating institutions carried out sectoral feasibility studies (fulfilling what was described as "the project's immediate objective"), developed technology roadmaps, then IDB implemented some ideas through Bank (financing). The fact that projects were financed was described as "an important result". While not replication, "some of these projects with technology elements moved forward". The GEF-funded project implemented by IDB in Chile (2013-2020) is evidence: it addressed bottlenecks to developing a local solar industry by promoting pilot projects and strengthening local manufacturers' capacity to produce solar panels and systems for the domestic market<sup>33</sup>.
- 32) In view of the concern about the sustainability of these Regional Centres, IDB's partnering with developed country institutions at regional level has been described as a pragmatic response to ensure the continuity of programming after the PSP funding in GEF-5 ends<sup>34</sup>. In another move to sustain the results of its initiatives, the IDB group has used concessional resources from the GEF and GCF to mobilize financial intermediaries, state and private institution as well as Climate Investments Funds (CIF). See (¶42) under Section 3.2: Financial Support Linked with Sectoral Technology Benchmarks.

### Technology Needs Assessment (TNA)

- 33) In light of commitments to promote technology transfer to developing countries that have been renewed at each COP meeting, TNA (described as a key element in the PSP's long-term implementation) plays a foundational role due to its country-driven nature, high level of stakeholder engagement, and capacity-building outcomes. The COP's mandate to the GEF to support TNA has proved vital for giving this process a higher level of importance in stakeholders' eyes. Delivering "ambiguous and often fuzzy results", informants observed that

<sup>30</sup> <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/africa-climate-change-fund>

<sup>31</sup> p6, paragraph 19, TEC Report (April 2019) by A.M. Verbeken: Updated Evaluation of the Poznan Strategic Programme on Technology Transfer <https://unfccc.int/sites/default/files/resource/7e.pdf>

<sup>32</sup> EBRD FINTECC homepage: <https://fintecc.ebrd.com/index.html>

<sup>33</sup> p13, Mid-Term Review (2017) of "Promotion of Development of Local Solar Technologies in Chile" further indicates that this project was innovative for Chile because, despite its large solar potential, solar generation was virtually non-existent at the project's onset. This project was not related to the Regional Centre. It was part of the PSP pilot projects.

<sup>34</sup> Documented in TEC's 2015 PSP Review: p17, paragraph 61

the value its upfront capacity-building, networking, cheerleading, and institutional strengthening is downplayed in the face of assumptions associated with funding mechanisms (like the GEF, GCF, World Bank, regional development banks, private sector, etc.) that “the real action is when money is involved and where there’s investment in projects”, whose dimensions are seen as easier to measure. In describing the support provided to fund TNA, which was portrayed as insufficient in scale, an interviewee asserted, “it’s frustrating that there’s a disinclination to fund the softer upstream, upfront activities that deal with human beings and changing mindsets and getting individuals empowered to actually make changes”.

- 34) Done well, a stakeholder explained that TNA’s contribution in “identifying barriers, determining what countries can do on their own, and prioritizing actions” in the form of a Technology Action Plan (TAP), can “avoid that it’s just an unsubstantiated wish list”. The GEF-funded TNA process promoted by UNEP was described by informants as “actually a fairly cost-effective sharing of experience in a lot of countries”, with “a certain community that has developed around what is TNA, which is beyond just the assessment”. Beyond the cases of Ecuador and Georgia<sup>35</sup>, the TNA process has been particularly helpful for Lebanon: facing many development challenges, which made it hard to get the climate topic onto the agenda of decision-makers, TNA reportedly helped to “focus the climate change discussion into 4 sectors” and “the prioritization exercise for technology and sectors was eye-opening for seeing the real challenges” confronting the country. Having a fully-dedicated Technical Focal Point coordinating the TNA process was key to the success of this endeavour and the delivery of good quality outputs, which interviewees affirmed are extensively used by policy-makers and technical experts to guide proposals, identify capacity-building needs, and request technical assistance. An informant attested that, “every single national report references the TNA, they actually use and complement the data. It’s not just words. They are carrying the data forward and make something better out of it”<sup>36</sup>.
- 35) Beyond TNA’s role in supporting the formulation and implementation of NDCs, there is still a need to develop bankable projects, ready for financing<sup>37</sup>. Informants explained this in terms of “a need to go the extra mile” to make sure that support is provided to a country, together with a process to ensure that a project reaches the point of actual transfer of a climate relevant technology, under concessional or commercial support. Stakeholders asserted that the level of support for TNA activities would likely need to be enlarged. More money per country and a longer duration were mentioned (with the current short project cycles largely seen as detrimental to development: “good donors and good projects are in there for the long haul”). Some contended that doing TNA as a serious exercise, beyond just capacity building, likely necessitates narrowing of scope, to fewer focal sectors. One informant recommended to “play a longer strategy, step by step”. This risk management strategy translates into scaling down initial pilots, doing seed projects, then going back a few years later to assess the results and plan further from that basis. For more challenging situations, it was suggested that a sequence of TNA projects with a 10-year horizon in mind may be (more) suitable (“don’t expect that you can do something meaningful in 3 years”).
- 36) The resources provided for TNA were described as “very, very limited”. Informants asserted that within the available budget, TNA ends up being more about getting countries to see what tools are available, identify what they can use, and how to apply them. Another concern is that the TNA has not created “any permanent

<sup>35</sup> According to TEC’s 2015 PSP Review, p14, ¶140: some developing countries have used TNA outcomes to support preparation of intended nationally determined contributions (INDCs), national communications, nationally appropriate mitigation and adaptation plans, national development project proposals, etc. For example: i) Ecuador used TNA results to prepare its national climate change strategy; ii) Georgia implemented a project based on its TNA results to promote adoption of energy-efficient lighting technologies.

<sup>36</sup> In Lebanon’s case, TNA is explicitly referenced in its National Renewable Energy Action Plan of Ministry of Energy and Water; Ministry of Environment/Ministry of Finance’s Feasibility Study on Fossil Fuel Subsidies Removal; Ministry of Environment’s Policy for Optimal Renewable Energy Mix, Pilot Projects for Rainwater Harvesting from Greenhouse Tops implemented by Ministry of Environment and UNDP, linked to National Guidelines for the Agricultural Sector, amongst many other policy and project references

<sup>37</sup> Identified in TEC’s 2015 PSP review, this gap remains: (p14, ¶141). It was reported that stakeholders from implementing agencies, national coordination teams, and financial institutions alike noted that further steps were still needed to develop bankable projects emerging from the TNA results in order to materialize more widespread implementation of the envisaged technologies

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institutional integration”, apart from a few cases (e.g. Lebanon, Uruguay, Armenia, Indonesia, Vietnam). Asked how to remedy the situation, an informant asserted that countries “should start with TNA, roll it through an existing institutional structure, like the CTCN, and push national governments on how they are going to integrate TNA into the budget and criteria of projects that flow into their political decision-making processes”. Such a view privileges institutionalization as the key objective of the TNA exercise: where there is an objective for the government to take ownership, then TNA can presumably be driven in a more impactful manner, in alignment with NDC commitments. Others contended that TNA, in itself, has no implication. By contrast, the NDC exercise is seen as much more serious in that it is “self-obligating” and was described as “becoming more representative of the priorities of the government”, thus offering a platform to “push countries to be more emphatic about directions that they would like to further pursue”.

### 3.2 Financial Support Linked with Sectoral Technology Benchmarks<sup>38</sup>

- 37) Formal decisions have been made on the need to scale up TNA<sup>39</sup> as well as the recommendations coming out of the TNA process. To date, the ‘how’ has been left open. Experience from UNEP’s TNA Phase II<sup>40</sup> points to the primordial importance of the national governance structure, highlighting essential features that work to facilitate financial support, as follows:
- Define a strong national project governance structure at the start;
  - Align with existing structures that have proven to be effective;
  - Use existing national climate changes committees, or other already-formed relevant committees to implement/supervise a project to avoid institutional duplication and immediately seek for alliance with other relevant national developments. This is applied by most countries and appeared to be successful;
  - Avoid setting up a new structure that generates parallel networks and risks for overlaps and confusion during interconnected decisions;
  - Incorporate the national UNFCCC - National Designated Entity (NDE) in a leading position within the governance structure; e.g. as (co)chair;
  - Involve focal points for CTCN and appropriate representation (e.g. Designated National Authority) from funding partners (e.g. GCF, GEF, Adaptation Fund) in the structure, thereby creating first entry points for engaging with such financial mechanisms.
- 38) Another lesson from UNEP’s TNA Phase II implementation is to give specific attention to engaging with financial entities and mechanisms. While their role is pivotal post-project, experience shows that the earlier they are incorporated, the better – thereby aligning data collection, analysis, and descriptions of plans that later need finance to their requirements. This project’s TE pointed to evidence that those countries that had clear knowledge about financial mechanisms (due to early stage engagement) were more successful in defining project proposals. Reportedly, this aspect has already been strengthened in the ongoing TNA Phase III.

#### Instruments

- 39) In bringing forward experience on linking financial support for climate technologies with achievable sectoral benchmarks, informants mentioned the importance of adopting a broad view, spanning financial instruments as well as innovating business models. The project review identified several examples; a few are profiled here.

<sup>38</sup> This notion is linked to Parties’ actions in developing INDCs and TNAs using a sectoral approach that involves identifying key priority sectors for mitigation and adaptation, aligned with national sustainable development priorities. Current TNA methodology includes detailed identification, prioritization, and assessment of sectors; technologies; and measures to overcome barriers for technology development and transfer. This could serve as a logical starting point for Parties preparing their NDCs. Linking sectors, technologies, and implementation measures across TNAs and NDCs would ensure that coherent climate targets and actions are mainstreamed and embedded in national policies/frameworks. See 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](https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/tn_meetings/40067a60235c4b1c9737e9abf532003a/e8a0bd09bec44237934ee7ed569b2d9d.pdf)

<sup>39</sup> Decision 13/CP.25 - [https://unfccc.int/sites/default/files/resource/cp2019\\_13a02\\_adv.pdf#page=15](https://unfccc.int/sites/default/files/resource/cp2019_13a02_adv.pdf#page=15)  
Decision 10/CP.23 - <https://unfccc.int/sites/default/files/resource/docs/2017/cop23/eng/11a01.pdf>

<sup>40</sup> TE (2020) of UNEP/GEF Project “Technology Needs Assessment Phase II” (F. Verspeek), from Lessons Learned, p13

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- 40) Energy Savings Insurance (ESI), launched with GCF support by IDB in El Salvador, Mexico, Colombia, Brazil, Peru has been recognized by international think tanks, bilateral donors, and specialized publications<sup>41</sup>. Having identified the problem as SMEs' reluctance to adopt relevant technology and invest in energy efficiency measures, the ESI solution is used to enhance their confidence that energy efficiency projects will generate sufficient energy savings to pay for loans that need to be assumed to make the investments. In conjunction, capacity building activities targeting local financial institutions have increased their understanding of the associated performance risk and returns thereby, in turn, increasing their willingness to finance such initiatives.
- 41) KawiSafi Ventures describes itself as investing growth capital in proven business models that address key market gaps, with an aim to deliver ambitious impact objectives and market-competitive returns<sup>42</sup>, investing in companies that are scalable and focused on serving base of the pyramid populations in Kenya and Rwanda<sup>43</sup>. With a GCF-provided grant of USD 10 million and USD 67.5 million in equity implemented by GCF's Accredited Entity Acumen Fund, Inc., during 2016-2025, through the creation of a new investment fund to drive off-grid solar power in East Africa (investing in 10-15 clean energy companies), KawiSafi has taken credit for driving a low-carbon paradigm shift and leapfrogging fossil fuel grids to clean energy – specifically mentioning that Kenya and Rwanda are now including cleaner off-grid solutions within their National Electrification Strategies – demonstrating that nations can accelerate their clean energy transition through decentralized solutions<sup>44</sup>.
- 42) Climate Investment Funds (CIF)<sup>45</sup> were identified by informants as an attractive channel to mobilize funding towards achieving sectoral targets. Others pointed to the benefit of working with a Bank: “to help make projects implementable from a finance point of view”. According to an interviewee, IDB and CTCN have begun to collaborate in designing studies that increase the bankability of proposed projects with technology elements. Another declared, “there’s a lot of potential for MDBs to collaborate with the CTCN”. It was mentioned that IDB works with clients in Latin America and the Caribbean that include Councils of Science and Technology, which have an institutional role to actively push for the inclusion of climate considerations in national policy. An informant explained, “you can see efforts made with good faith by a country’s Climate Change Office to promote a technology. They do nice feasibility studies, but if they don’t consider finance from the outset, there’s little chance that a project will be bankable<sup>46</sup>. It will stay in a drawer”.

### Approach

- 43) Since its 2011 creation, GCF has been channeling funding to recipient countries through accredited national and sub-national implementing entities (e.g. NGOs, government ministries, national development banks, and other national/regional bodies) that have piloted instruments too numerous to profile here, which provide evidence of success cases as well as mechanisms that have proven more challenging. While an instrument may succeed in some settings, an aspect seen to generate universal value lies in embedding ways to mitigate subsequent funding barriers as part of exit strategy. Evidence from TNA Phase II implementation indicates while alignment with country focal points of the CTCN and/or GCF typically takes place, this is “very rarely” the case with other donors and/or investors<sup>47</sup>. The strength (or weakness) of such a post-TAP step was attributed

<sup>41</sup> <https://www.iadb.org/en/sector/financial-markets/financial-innovation-lab/energy-savings-insurance-esi%2C19717.html>

<sup>42</sup> <https://www.kawisafi.com/fund>

<sup>43</sup> p4, GCF's 2019 Annual Performance Report. With GCF's funding support, KawiSafi's portfolio companies directly impacted 4.8M lives in Kenya and Rwanda and offset 3.9M tons of climate-warming emissions, directly brought access to clean energy to an estimated 10.2M individuals - and averted 6.2M tons of climate-warming emissions. In terms of lives impacted, it was estimated that 41% have incomes at or below USD 3.20 per day (the poverty line as defined by the World Bank) and that 45% are women.

<sup>44</sup> As documented in the GEF's (2019) Annual Performance Report <https://www.greenclimate.fund/project/fp005>

<sup>45</sup> Established in 2008, the USD 8.5 billion CIF aims to accelerate climate action by empowering transformations in clean technology, energy access, climate resilience, and sustainable forests. CIF's large-scale, low-cost, long-term financing lowers the risk and cost of climate financing. CIF tests new business models, builds track records in unproven markets, and boosts investor confidence to unlock additional funds. Currently, CIF manages a collection of programs that enable climate-smart development planning and action through 325 projects in 72 developing and middle-income countries worldwide <https://www.climateinvestmentfunds.org/about-cif>

<sup>46</sup> Refers to procedural aspects i.e. acceptable for processing by a bank, inferring provision of a traditional financing package

<sup>47</sup> TE (2020) of UNEP/GEF's Project “Technology Needs Assessment Phase II” indicates that (p12) despite ambitions to put more

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to the knowledge of the TNA coordinator, asserting that in situations where the TAP Coordinator or host agency also incorporates the NDE/NDA for the CTCN/GCF, “it is going more smoothly”.

- 44) Illustrative of an approach for moving forward: AfDB has worked on action agendas, prepared investment prospectuses (related to energy access), and presented various investments that could or should take place as the result of a study (e.g. in Botswana, Malawi). These initiatives were described as a direct result of the Centre. These were even validated by the government and key stakeholders with the purpose of identifying entry points with the potential for bigger investments to come in. Traditionally, the Bank would stop there. Now, AfDB is including a requirement in adaptation proposals to identify potential financing sources that could come in afterwards “so that those investments actually happen and for climate technologies to be procured as part of the investment”.
- 45) COP21/CMA1 put the TEC’s attention on endogenous capacities and technologies<sup>48</sup>. While PSP-related projects under the GEF4/5 [described as ‘technology-centric’ and “technology push”, ¶160), ¶174)] understandably did not emphasize these notions, the more recently funded GCF projects have incorporated the idea that support will be used to “enhance” and “promote” endogenous capacities” (specifically mentioned in readiness requests/project descriptions for Lesotho, Malawi, Zambia, Timor Leste, Tonga, and Myanmar). Furthermore, the GCF-funded project in Bangladesh describes its aim to “leverage indigenous knowledge management capacities and approaches”. Informants pointed out that irrespective of whether technology is transferred or endogenously developed, an ongoing challenge relates to 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 to inform decision-making.

#### Private Sector Engagement

- 46) Public private partnerships were included as a key PSP element, reflecting conviction that the private sector is the most significant source of capital for climate-related financing and acknowledging the Parties’ longstanding interest to work effectively with the private sector to support technology development and transfer. GEF prioritizes partnership with the private sector. This is particularly evident under GEF-7 with regard to promoting the transfer of low-carbon and climate-resilient technology, deployment, and innovation, especially for sustainable energy breakthroughs. Implementing agencies have taken up this clarion call, as evidenced by (citing two illustrative initiatives reviewed as part of the dataset):
- GCF-funded readiness support rolled out by UNIDO in Cambodia<sup>49</sup>, under its Programme for Country Partnership (PCP)<sup>50</sup>, which has led to a full-project proposal that explicitly aims to engage private sector actors in climate action in special economic zones as well as build their capacity;
  - GCF-funded readiness support implemented by the Caribbean Community Climate Change Centre (5Cs)<sup>51</sup> in The Bahamas<sup>52</sup> intends to unlock the local private sector’s potential to contribute to climate action using a phased approach: Phase 1: Diagnosis/ Barrier Analysis; Phase 2: The National Conversation i.e. convening a Public-Private Dialogue Forum; Phase 3: Elaboration of a clear plan to accelerate climate action through

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emphasis on engaging with the donor community at the right moment of the trajectory of TNA/TAP development (and thereby secure potential funding for project ideas and align data gathering and information description towards requirements of donors), this was covered in a limited way in the bulk of UNEP’s TNA Phase II implementation <https://wedocs.unep.org/handle/20.500.11822/32207>

<sup>48</sup> See <https://unfccc.int/tclear/endogenous/index.html> and [https://unfccc.int/sites/default/files/resource/sb2019\\_04E.pdf#page=10](https://unfccc.int/sites/default/files/resource/sb2019_04E.pdf#page=10)

<sup>49</sup> <https://www.greenclimate.fund/sites/default/files/document/readiness-proposal-cambodia-unido.pdf>

<sup>50</sup> <https://www.unido.org/sites/default/files/files/2021-06/PCP%20Cambodia%202019%20Annual%20Report.pdf>

<sup>51</sup> In 2015, GCF accredited 5Cs as a Regional Implementing Entity (Direct Access Entity). Coordinating the Caribbean region’s response to climate change, 5Cs is implementing GCF-funded readiness support in 11 of its 14 member states <https://www.caribbeanclimate.bz/>

<sup>52</sup> <https://www.greenclimate.fund/countries/bahamas> says these resources are actively supporting government in its role to create a favourable environment for attracting private investment towards national climate change programs/targets -- and advises the public sector to learn about private sector motivation to invest in climate-resilient/low carbon technologies and mitigation activities, and the associated risks and barriers. Through such dialogue, it is envisaged that appropriate policy/instruments could be developed to enhance private sector participation in adaptation and mitigation frameworks and investments.

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strengthened partnership and capacity building to design and implement transformative projects.

47) Considerations that have emerged from a review of the project documentation and the exchange with informants points to ways in which private sector engagement and leverage could be improved:

- **Seize the ‘right’ time:** private sector (and government) actors need to be engaged at the ‘right’ moment: “too early contact can lead to disappointment and drop-out”, “too late contact will lead to challenges during the implementation phase”<sup>53</sup>;
- **Manage expectations:** interest in possible investments arising from identified project proposals is seen as the trigger for private sector engagement; however such actors may doubt the value of the process and be unsure about time commitments. Challenges in garnering support from private investors were also mentioned in relation to concerns about the ability to subsequently turn a profit<sup>54</sup>. Looking to countries that were more successful in connecting with this group, as well as getting the timing ‘right’, successful engagement has stemmed from preparing/articulating a compelling value proposition (*What’s in it for us? - Why should we be involved?*). It has also proved essential to be clear and open about the planning process and objectives and to pay attention to expectation management from the outset to avoid disappointments, frustrations, and exit<sup>55</sup>;
- **Build trust:** generating confidence with stakeholders and respecting confidentiality are requisites for the success of most projects. As illustration, the GEF-funded phase-out of HCFCs and promotion of HFC-free energy efficient refrigeration and air-conditioning systems implemented by UNIDO in the Russian Federation was secured through trust and strong cooperation of private sector and national government<sup>56</sup>.
- **Be more agile:** investors will not commit to waiting 1-2 years for the GEF project cycle to run its course, and moreover, the stated desire for pilots to target innovative new approaches and technologies is perceived to be at odds with the pace of project design and approval; it has already been observed that the speed of the GEF project cycle is a barrier to engagement the private sector on technology transfer.<sup>57</sup>
- **Clarify intellectual property rights (IPR):** informants pointed to the huge divide between developed and developing countries on this issue, which some believe has a bearing on the potential to engage private sector actors. The GEF-funded SolarChill project<sup>58</sup> implemented by UNEP in Colombia, Eswatini, and Kenya reflects confusion around the topic of ownership rights that affected private sector participation. The project design for the GEF-funded, UNIDO-implemented pilot to produce ethanol from cassava in Thailand, Vietnam, and Lao PDR did not even consider the notion of property rights. This was raised as a critical concern by the Evaluator, given that the project was conceived to overcome policy, market and technological barriers to support technical innovation and south-south technology transfer<sup>59</sup>. Amongst the 24 GCF-funded projects reviewed for this Technical Paper, only one addressed IPR, putting ownership of project deliverables in the hands of the Implementing Agency and using protections available through procurement procedures to treat IPR<sup>60</sup>. A UNFCCC synthesis report mentioned that some of the Parties, in

<sup>53</sup> Lesson learned UNEP TE 2020, p79 <https://wedocs.unep.org/handle/20.500.11822/32207>

<sup>54</sup> Lesson learned UNEP-ADB TE 2020, as reported by GEF to COP26 (30 September 2020) on p125 [https://www.thegef.org/sites/default/files/documents/GEF\\_Report\\_UNFCCC\\_COP26.pdf](https://www.thegef.org/sites/default/files/documents/GEF_Report_UNFCCC_COP26.pdf)

<sup>55</sup> Lesson learned UNEP TE 2020, p80 <https://wedocs.unep.org/handle/20.500.11822/32207>

<sup>56</sup> Lesson learned UNIDO TE 2018, p14 [https://www.unido.org/sites/default/files/files/2019-01/GFRUS-105324\\_TE-2018\\_181218-F.pdf](https://www.unido.org/sites/default/files/files/2019-01/GFRUS-105324_TE-2018_181218-F.pdf)

<sup>57</sup> Lesson learned TEC 2015 PSP Review, p18

<sup>58</sup> Key finding of MTR 2018, p27: This project started before “having” a demonstrated, performing, reliable SolarChill technology, meaning that technology transfer happened after field testing. To have a legal right to ‘transfer’ a technology, one must own that technology. In this project, the only technology owners were the manufacturers themselves: “logically, they won’t share their know-how with competitors”. The Evaluator observed that what is taking place here is simply a technology development, not a transfer of the basic design ideas, which are or have been generated by the SolarChill consortium [https://www.solarchill.org/app/download/7932301956/Final+Report\\_SolarChill+Project-Midterm+Review.pdf?t=1608650810](https://www.solarchill.org/app/download/7932301956/Final+Report_SolarChill+Project-Midterm+Review.pdf?t=1608650810)

<sup>59</sup> Key finding, TE 2018, p12 [https://www.unido.org/sites/default/files/files/2019-08/TE-100264\\_Thailand\\_Overcoming%20policy%20market%20Ethanol%20production.pdf](https://www.unido.org/sites/default/files/files/2019-08/TE-100264_Thailand_Overcoming%20policy%20market%20Ethanol%20production.pdf)

<sup>60</sup> p18, Section 6.1 of Readiness Support Request, “Technology needs assessment and action plans for the support of climate-friendly Continued...

their TNA reports, referred to IPR issues, mainly raised in relation to economic and financial barriers, in particular, regarding the cost implications of obtaining access to certain technologies, and policy, legal, and regulatory barriers, in particular, regarding the protection of IPRs. This same report indicated that the lack of experts in negotiating IPR contracts was a barrier to the transfer and diffusion of their prioritized technologies and pointed to a need for international cooperation to gain more clarity on the role that IPRs play in technology development and transfer.<sup>61</sup>

- 48) In considering the IPR issue, informants noted that “many people working on the technology side are not trade or IPR experts”; consequently, “that side of government policy has not been addressed”. Moreover, a large part of technology transfer work has been in terms of economic and technical feasibility and standards-setting, “not looking at why a technology owner is not willing to provide a technology to manufacture in a country” or hesitates to develop local industry to provide its components. Another interviewee mentioned that understanding who has the rights to a technology becomes an issue “when countries feel they may lose national assets if aspects are divested to private individuals who might have only a profit motive”.

### 3.3 Gender Mainstreaming

- 49) At COP22 (Marrakesh, 2016), the Parties reiterated their commitment to mainstreaming gender in climate change and the UNFCCC process, providing substantial instructions in a standalone decision on gender<sup>62</sup>. The Operating Entities have adopted gender policies and encourage the mainstreaming of gender in all projects. GEF’s Implementing Agencies have their own policies related to gender responsiveness, and they also comply with GEF social/environmental safeguards and fiduciary standards. It is understood that most GEF-7 PIFs<sup>63</sup> have incorporated plans to carry out gender analyses and develop gender action plans and sex-disaggregated and gender-sensitive indicators during project development, believing this “will ensure that gender-responsive approaches are applied throughout project development and implementation”. The GCF describes itself as the first climate finance mechanism to “mainstream gender perspectives from the outset of its operations as an essential decision-making element for the deployment of its resources”<sup>64</sup>. Promoting gender-responsive climate action initiatives that benefit women and men, GCF has included sections in its Annual Performance Report template that oblige implementers to report on Environmental and Social Safeguards & Gender, Gender Action Plan, and progress on their implementation. To support NDAs, focal points, accredited entities and delivery partners, GCF has developed a toolkit with guidance to holistically mainstream gender into projects and programs<sup>65</sup>. The GEF has also produced guidance to advance gender equality in its projects and programs<sup>66</sup>.
- 50) Evidence from GEF-funded projects under review show the translation of that guidance to the ground generally had ‘little teeth’<sup>67</sup>; to be fair, in the era during which the PSP was initiated, an informant observed, “gender aspects were less important in these projects designed several years ago”:

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technology implementation in Cambodia’s special economic zones” indicated that all final IPR of project deliverables will have UNIDO ownership, all 3<sup>rd</sup> party IPR will comply with the terms of the GCF-UNIDO Readiness Framework Agreement, and that UNIDO would undertake to ensure, through procurement procedures, that contracted services do not violate or infringe any industrial property or intellectual property right or claim of any third party.

<sup>61</sup> p41, ¶133 Third Synthesis Report on Technology Needs Identified by Parties not included in Annex I to the Convention (21 October 2013) <https://unfccc.int/resource/docs/2013/sbsta/eng/inf07.pdf>

<sup>62</sup> [https://unfccc.int/files/gender\\_and\\_climate\\_change/application/pdf/auv\\_cop22\\_i15\\_gender\\_and\\_climate\\_change\\_rev.pdf](https://unfccc.int/files/gender_and_climate_change/application/pdf/auv_cop22_i15_gender_and_climate_change_rev.pdf)

<sup>63</sup> Project Identification Form is the first formal document submitted to the GEF Secretariat for review and approval. GEF requires its Implementing Agencies to provide the following in Program Framework Documents (PDFs) and PIFs: i) Indicative information on gender considerations relevant to the proposed activity, and any measures to address these, including the process to collect sex-disaggregated data and information on gender; ii) Description of any consultations conducted during project development, as well as information on how stakeholders will be engaged in the proposed activity, and means of engagement throughout the project/ program cycle.

<sup>64</sup> <https://www.greenclimate.fund/projects/gender>

<sup>65</sup> 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](https://www.greenclimate.fund/sites/default/files/document/guidelines-gcf-toolkit-mainstreaming-gender_0.pdf)

<sup>66</sup> GEF (October 2020), *Guidance to Advance Gender Equality in GEF Projects and Programs* <https://www.thegef.org/sites/default/files/publications/GEF%20Guidance%20on%20Gender.pdf>

<sup>67</sup> In the sense that there is insufficient power or support of authority to compel obedience or penalize inaction

Continued...

- Sri Lanka Project to develop a bamboo supply chain (implemented by UNIDO)<sup>68</sup>; its 2016 MTR said: “The Consultant noticed that about 95% of the workers at the tea box factory visited were women working on benches for the assembly, polishing and finishing of the tea boxes. Four or five men only worked in the furnace areas where bamboo or wooden boxes were treated. Moreover, it was also noticed during the visit to one of the plantations that women were working alongside men in cutting weeds and cleaning up the land in preparation for a new harvest. It is also known that women in the rural areas work alongside their men in the fields and farms, plantations or in handicrafts. These observations and facts indicate that the project will certainly realize and improve gender mainstreaming in Sri Lanka when new industries using bamboo are established”;
- Cambodia Project to develop a bamboo supply chain (implemented by UNIDO)<sup>69</sup>, its 2019 TE said “Because this project is under GEF-4 replenishment, the gender issue was not contemplated in the project design. However, project management encouraged participants in project activities to bridge the gender gap”;
- China Project to promote ‘green freight’ (implemented by World Bank)<sup>70</sup>; its 2016 TE addressed gender as an overarching theme, together with poverty impacts and social development, which validates the notion of strengthening the link between gender and vulnerability (see ¶155).

51) In GCF-funded projects where gender dimensions were expected to drive transformative impact, the treatment of this topic came through more convincingly in adaptation projects than those aimed at mitigation:

- Malawi Adaptation Project is scaling up the use of climate information and early warning systems (GCF-funded, UNDP-implemented, 2017-2023): focuses on co-benefits pertaining to gender aspects. Its Annual Performance Report (2019) has 52 mentions of ‘gender’ embedded throughout, which report on the fruit of gender analysis and gender-responsive action plans formulated at the project’s early stage;
- Zambia Adaptation Project is strengthening climate resilience of agricultural livelihoods (GCF-funded, UNDP-implemented, 2018-2025): highlights its ‘gender-sensitive achievement’ in reaching a 50:50 beneficiary ratio with exactly 132,246 women and 132,246 men involved, with collection and reporting of sex-aggregated data for participation and impact. Notably, a ToR for a Gender Specialist was developed. However, “due to a shortage of funds after the purchase of vehicles under co-financing from UNDP in 2019, the recruitment process became delayed”<sup>71</sup>;
- Benin Adaptation Project is building climate resilience using an Ecosystem-based Adaptation (EbA) approach (GCF-funded, UNEP-implemented, 2019-2024): identified gender equality as 1 of 6 key social and environmental safeguards. Gender mainstreaming is addressed throughout project reporting;
- Argentina Mitigation Project is scaling up investments by SMEs in RE-renewable energy and EE-energy efficiency (GCF-funded, UNEP-implemented, 2019-2024): describes various things that should be done with respect to a Gender Action Plan and gender baseline study not yet conceived;
- Mauritius Mitigation Project enabling the energy grid to use RE-generated electricity (GCF-funded, UNDP-implemented, 2017-2025): mentioned consultations held to develop a solar PV training program for

<sup>68</sup> Launched in 2012, completed in March 2021, this project had an objective to develop a bamboo supply chain and product industry in Sri Lanka that would lead to reduced global environmental impact from GHG emissions and a sustainable industry base. Its design indicated Gender Marker 1: limited expected contribution to gender equality <https://open.unido.org/projects/LK/projects/100043>

<sup>69</sup> Launched in 2012, completed 2018, this project’s objective was to promote sustained transfer to Cambodia of small to medium sized 1-3 MW biomass-fueled power and steam generation technologies from one or more countries like India, China, Thailand, Malaysia, Indonesia, Vietnam where these technologies were already proven. Its design was assigned Gender Marker 1. While designed to use technology transfer to establish commercial pilot plants and being fully in line with national priorities for energy development, the project’s performance was deemed unsatisfactory (due to inappropriate regulatory framework for supporting independent power producers, weak financial system, limited capacities of local technical resources, together with serious project design deficits (pX) [https://www.unido.org/sites/default/files/files/2019-10/GEF%20ID-4042\\_GFCMB12002-100223\\_TE%20Report\\_2018.pdf](https://www.unido.org/sites/default/files/files/2019-10/GEF%20ID-4042_GFCMB12002-100223_TE%20Report_2018.pdf)

<sup>70</sup> Running 2011-2015, Guangdong Green Freight Demonstration Project aimed to test 6 technologies verified by the US EPA. In the face of slow uptake from the 145 involved trucking companies, public outreach was strengthened to build awareness of energy efficient truck technologies and cost savings. Responding to the Evaluator’s moderately satisfactory project rating, the Borrower/Implementing Agency attested that green freight requires not only the joint effort of government, associations and transport sector enterprises, but also the active participation of the whole society.

<sup>71</sup> p24 Annual Performance Report (2019) <https://www.greenclimate.fund/document/2019-annual-performance-report-fp072-strengthening-climate-resilience-agricultural>

women entrepreneurs and an awareness campaign to engage, inform, and sensitize communities and women entrepreneurs – seen to be “grassroots agents of change in the shift to RE” so that they could be better informed about the project’s impacts and outcomes and “contribute in any way they wish”.

- 52) GEF’s 2021 report to the COP (p38, ¶159) noted a “positive trend in terms of projects actively reaching out to women’s organizations and gender focal points of relevant national ministries, NGOs and civil society. Differences remained, however, regarding the quality/scope of gender considerations and in communicating their results” in project implementation reports (PIRs) and MTRs. GCF’s 2021 report to the COP (p5, ¶16) indicated that it requires its accredited entities to consider and submit a gender assessment, along with appropriate environmental and social assessments, and a program/project-level gender action plan for all mitigation and adaptation activities implemented through the public and private sectors.
- 53) The observations and assertions of informants point to the gap that still needs to be bridged on this topic. The question, “In which ways has gender mainstreaming proved useful in accelerating action on technology development and transfer?”, elicited the following responses:
- “I don’t see any added value on gender being mainstreamed”
  - “We don’t have enough data points to say that it really accelerates”
  - “The notion that gender mainstreaming accelerates action doesn’t come to my mind; I can’t relate to this”
  - “I see merit and that it enhances adoption of technology, but I can’t say that it accelerates action”
  - “It’s a compulsory element in all actions from every donor. It’s an ad-on. It doesn’t create any additional leverage. It doesn’t speed up the progress. I don’t see much change that this helps”
  - “I don’t have any expertise on this topic; we involve representatives of the relevant ministry to be part of the Technical Working Groups and Steering Committees”
  - “Most countries are not ready to accept or address it; any spending on this is seen as wasted resources”
  - “Some countries accept it, others do so with reluctance; it’s at an early stage for the top level to understand the value of such an emphasis”
  - “Countries don’t know how this makes how they address climate change any more efficient or effective”
  - “This is not a decisive factor for adapting countries to climate change”
  - “Ministries of Energy, Transport, Environment, and Public Works don’t understand why we’re talking about gender when we’re talking about e-mobility; for them, this is such a disconnect”
  - “Ability to incorporate gender depends on the kind of project; it’s much easier in projects with a strong community foundation but having high-level technology without an element of community, it’s irrelevant”
  - “I’m not aware of any instances where gender mainstreaming has accelerated action. Personally, I don’t think it’s a bad idea. To make change in this domain, you need to keep pushing it”.
  - “It’s a very grey area: the moment that you focus on gender, it becomes development aid, not a technology transfer project; the moment that you put more stress on gender mainstreaming, the kind of TA requests that come from countries are ‘I want support on cook stoves’, ‘I want better access to drinking water’” – these imply small projects not seen as reflecting the urgency and scale of the climate change challenge.
- 54) While aware that the gender aspect must be mainstreamed (mentioning that “in all COP decisions, there is a specific mention of gender”), informants expressed confusion about the level and ways in which this topic can make a difference. Some relayed a conviction that the mandate of GEF and GCF is to reduce GHG emissions and build resilience to climate change. In this light, gender was called “a secondary notion”, explaining “mitigation means that we’re not heating up the planet too much; adaptation means that not too many people suffer too much from climate change”. Another said “gender is not climate dependent and climate change is not gender dependent. Another contended that “climate finance is there to save the climate, not develop the world into whatever direction, other than climate proofing”, emphasizing, “this is not a relevant topic at strategic planning level where you are talking very generically about where to steer the course of sizeable amounts”, advocating that gender, like other dimensions that could be applied (poverty, immigration, conflict, social structure of a society) affect project quality and are “more appropriate to consider on a project level for having a successful initiative”. These responses point to a need to consider vulnerable people, vulnerability, and resilience in climate change projects and programming, given that sustainable development, GHG mitigation, and a climate-resilient society are all part of the Paris Agreement goals.

- 55) Suggestions for channelling focus and resources into paths that may be even more effective in mainstreaming gender and bridging the gap in the perceived relevance and utility of this approach in accelerating the transformative impact of technology transfer imply a mix of strategies ('stick', 'carrot', and 'other'):
- **Increase Operating Entities' pressure on their Implementing Agencies** to take the topic even more seriously (i.e. through exercising stronger interest in and supervision regarding relevant reporting requirements), thereby raising the motivation of Project Managers (and others) to prioritize gender mainstreaming ("if the GEF and GCF put the pressure, then the country will take notice");
  - **Encourage bilateral donors to invest more in order to sensitize national governments on gender issues** and how to make it more fruitful to integrate this dimension into their planning and decision-making;
  - **Identify the levels and entry points where gender is relevant / useful**, recalling, for example, TNA, which shows that this dimension can "help prioritize technologies" as certain technologies impact women more;
  - **Recognize that the issue is [also?] vulnerability, not [just] gender, per se**<sup>72</sup>. The sections of society that will suffer fastest and deepest from climate change are those who are most vulnerable ("society's most powerful groups have the most influence in deciding which groups are the most vulnerable, and therefore most impacted"); shifting the narrative to focus on those most vulnerable – rather than gender, per se – could pragmatically foreground attention on those groups most severely impacted by climate change, although arguably would still leave the women in this sector as the most negatively impacted.

### 3.4 Stakeholder Engagement

- 56) The Parties have long encouraged the adoption of practices that promote the participation of stakeholders in consultations and decision-making processes related to the Convention and its Protocols. The Financial Mechanism's Operating Entities have reflected its pivotal importance by establishing their own policies and guidance, as well as setting requirements for their implementation intermediaries' policies, procedures and capabilities related to stakeholder engagement. The GEF positions effective public involvement as "critical to the success of GEF-financed projects"<sup>73</sup> and a key strategic lever to mitigate operational risk and tap the financial and non-financial resources of the private sector. Working with multi-stakeholder platforms is seen as essential to transform markets and economic systems at the scale required to drive the uptake of low-carbon and climate-resilient solutions<sup>74</sup>. GCF has operationalised its priority for stakeholder engagement by embedding it within environmental and social safeguards, linking it with its sustainability guidance, and requiring its Accredited Entities to establish meaningful consultation and engagement processes<sup>75</sup>.
- 57) While there are regular mentions of the need for and commitment to engaging stakeholders and notions that this approach will build needed local capacities and benefit these actors, the set of TEs and MTRs used as the basis for project review provides very limited visibility of measures and strategies that projects have actually adopted where stakeholder engagement has proven key to accelerating action on technology development and transfer. There was mention of "getting a mixed audience", "including youth as part of the consultations", and "giving women and men an equal chance to participate".
- 58) Drawing from UNEP's TNA experience in Lebanon, the following insights provide useful food for thought:
- **Challenges in accessing stakeholders reflects weaknesses in networks and capacities** – UNEP's

<sup>72</sup> UNDP and the Global Gender and Climate Alliance. Their joint 2013 *Policy Brief: Linkages between Gender and Climate Change* positions climate change as hitting the poorest the most; as women in developing countries highly depend on local natural resources for their livelihood (as they are traditionally charged with securing water, food, and fuel for cooking and heating), they face the great vulnerability to climate change – while also experiencing unequal access to resources and decision-making processes, with limited mobility in rural areas. In this light, poverty and climate change are intricately related: the poorest and most disadvantaged groups tend to depend on climate sensitive livelihoods (e.g. agriculture), which makes them disproportionately vulnerable to climate change. <https://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/PB1-AP-Overview-Gender-and-climate-change.pdf>

<sup>73</sup> Through its potential to improve project performance/impact by: (a) enhancing country ownership and accountability; b) addressing social and economic needs of affected people; (c) building partnerships among Agencies and stakeholders; and (d) harnessing the skills, experiences and knowledge of a wide range of stakeholders, particularly CSOs, community and local groups, and the private sector, as noted in the GEF Policy on Stakeholder Engagement (November 2017) [https://www.thegef.org/sites/default/files/council-meeting-documents/EN\\_GEF.C.53.05.Rev\\_01\\_Stakeholder\\_Policy\\_4.pdf](https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.C.53.05.Rev_01_Stakeholder_Policy_4.pdf)

<sup>74</sup> GEF's (2021) Report to the GEF: p XIV ¶135; p26, ¶19(b); p30 ¶135

<sup>75</sup> <https://www.greenclimate.fund/document/sustainability-guidance-note-designing-and-ensuring-meaningful-stakeholder-engagement-gcf>

implementation revealed that local people know they have to engage multiple stakeholders, including youth, women, indigenous peoples but reportedly didn't have the tools and typically only have access to one group: government; the TNA team in Lebanon bridged these gaps by recruiting technical experts who had reputation/expertise recognized by their peers and already had their networks (think tanks, academics). The government supplied the network from its side (institutions);

- **Imbalance in knowledge across stakeholders hampers effective discussion** – while recognizing the importance of engaging the 'right' stakeholders in key steps of project implementation to brainstorm ideas, achieve consensus, and avoid subsequent obstacles (“there’s a risk of people putting sticks in your path so you invite them to the table to have peace of mind”), this assembles a diverse mix of understanding and capabilities; UNEP’s TNA Phase II project partially covered the gaps via preparation of factsheets to provide all participants with similar baseline information; however, “there was still a need for further action”;
- **Insufficient meaningful engagement of private sector actors** – they have had limited involvement in TNA (“missing in the process of identifying needed technology and how it will be scaled up”); in other processes, it was reported that business community representatives are brought in observers and “they feel as observers” (“they participate in 20 sessions but they are not directly involved”); UNEP’s Phase II TNA evaluation (covering 28 countries) confirms limited involvement and “hesitation” of private sector actors, linking this to “limited funding, long process, mainly government-driven process, rather weak private sector in many of the countries”; insufficient representation via organisations (like CSOs); and their “doubt about the value of the process” – and recommended improved engagement with the private sector.
- **Pursuing a fit-for-purpose phased approach** – experience from Lebanon’s TNA showed that large consultations that allowed for brainstorming together were appropriate at the early stage to come up with “quick wins” and ideas that would not face a lot of institutional hurdles “in order to get something happening”. In the subsequent phase, the style of stakeholder engagement shifted away from technical experts and the academic sector to focus on decision-makers, using a 1:1 approach, working on a specific technology, with the expectation that inputs will be developed and taken forward into the legal framework.

### 3.5 Critical Enabling Conditions and Good Practices

*Evidence from the project evaluations and exchange with informants points to various lessons learned that help assure successful implementation of initiatives with technology components, particularly in light of the desire for sustained results and benefits, replication, and scaling up. These include:*

- 59) **Prioritize the Development of Facilitating Policy/Legislation.** Leveraging understanding of the role of national policy in enabling and hindering technology transfer – and evolving changes in policy and legislation that will typically be required – is key to enabling the adoption of new technology and related business models developed by those intent on its exploitation. An informant explained that replication happened if an activity in the policy space led to creating a conducive environment (e.g. GEF-funded, UNIDO-implemented projects saw scale-up when feed-in tariff schemes were established for energy generated from bio-energy; in St. Vincent and the Grenadines, the government acted to change legislation that allowed the electricity company to implement net-metering as well as tie and feed solar-generated electricity into the central grid – without this intervention, the new renewables concept would have failed; UNIDO’s project to establish a bamboo supply chain in Sri Lanka stimulated changes to regulations that were introduced to facilitate bamboo harvesting and transportation – under the condition that the project plantation was part of a 5-year management plan<sup>76</sup>; the success of the SolarChill technology transfer to Colombia, Kenya, Eswatini, and Swaziland was put down to exemptions provided for warehousing and transportation; in Jordan, the “lack of a strategic decision to anticipate activities to create enabling conditions” undermined prospects for successfully transferring the intended irrigation technology<sup>77</sup>; in Cambodia, while UNIDO was intent on transferring and upscaling biomass-fuelled technologies, there was insufficient appreciation of (and therefore inadequate resourcing to influence) the regulatory framework for supporting the envisaged independent power producers was inadequate<sup>78</sup>);

<sup>76</sup> Lesson Learned. MTR 2016, p169 Bamboo for Sri Lanka

<sup>77</sup> Lesson Learned, MTR 2018, p30 SolarChill Development, Testing, and Technology Transfer Outreach

<sup>78</sup> Lesson Learned, TE 2019, p175 Using Agricultural Residue Biomass for Sustainable Energy Solutions



- 60) **Focus on Evolving the Socio-Technological Context, not Technology Push.** In reviewing the GEF-4/GEF-5 technology transfer projects, this portfolio did not perform to expectations due to its underlying technology-centric approach. It reflects an idea to push early stage commercialisation technologies (e.g. for gasification), which an informant explained, “was done with a view that just by transferring technology into the local context, it can work, without understanding that the socio-technological context must evolve to absorb the technology cycle”. Leveraging the learning from these initial pilots, it is understood that subsequent projects under GEF-5, 6, 7 have been designed with a better understanding of the socio-technology context and how to influence the intermediate/coordinating environment in ways that will facilitate the adoption of technology and also create transformative change; put another way, “there’s a process of embeddedness required to get successful adoption and replication of a technology solution”;
- 61) **Build Momentum from Grassroots Demand and Technology Pull.** The review of the PSP-supported projects showed that pilots were 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 resulted in weakened relevance for country stakeholders and difficulty finding partners willing to invest<sup>79</sup>. An interviewee explained, “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 typically accelerates policy change”.
- 62) **Technology Integration Relies on Institutional Ownership.** Informants indicated that ownership of technology at an institutional level creates a permanent integration into the country’s social and economic fabric. As an example, the success of IDB’s GEF-funded project to implement a Regional Centre in Latin America and the Caribbean was attributed to generating ownership on the part of national and local governments. Another means of realising institutional integration was seen in reflecting a project’s activities in the work plans of relevant institutions. The need to ensure sufficient resources are included at design was highlighted in order to “engage, convince, and gain political support from the permanent authorities of the most relevant governmental institutions”<sup>80</sup>. UNEP’s experience with TNA indicates that: “institutionalisation needs to be the objective; if there is an objective for government to take ownership, then TNA can be driven in a different, much more useful, manner”;
- 63) **Community Engagement Maintains and Sustains.** There also needs to be ownership where the technology will be installed, as well as a deep understanding of baseline conditions in the country, even in the location where the technology is to be adopted. Stakeholder consultation and community involvement are seen as critical in this regard (e.g. community involvement programmes established in various Caribbean nations have been utilized expressly for the purpose of protecting instruments installed in relation to Automatic Weather Stations, even acting to replace batteries when called on);
- 64) **Outreach to Education/Vocational Actors to Assure Continuation.** Projects that incorporate educational/vocational actors and notions related to capacity-building and succession build valuable capacity for sustaining benefits (e.g. the GEF-funded, IDB-implemented local solar project in Chile pointed to the achievement of its Photovoltaic Training Programme in developing capacities in technical schools outside the national capital, which reportedly stimulated graduates’ interest to launch start-ups, based on their knowledge of the design, operation, and maintenance of small-scale PV systems. Informants linked the notion of building the capacity of the next generation with taking ownership of the technology through establishing succession planning (e.g. the Caribbean Community Climate Change Centre kicked-off an internship programme to build the capacity of students on every aspect of one of its projects, from groundwater recharge to quality testing. An interviewee 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”;
- 65) **Trust Underpins Adoption.** Technology use and replication are based on trust. UNIDO’s transfer of bio-energy

<sup>79</sup> p25, ¶166, TEC (December 2015) by S. Nakhoda: Evaluation of the Poznan Strategic Programme on Technology Transfer: Final Report by the Technology Executive Committee <https://unfccc.int/resource/docs/2015/sbi/eng/16.pdf>

<sup>80</sup> Lesson Learned. MTR 2018, p66, Climate Technology Transfer Mechanisms and Networks in Latin America and the Caribbean <https://www.thegef.org/project/climate-technology-transfer-mechanisms-and-networks-latin-america-and-caribbean>

technologies (i.e. a simple gasifier or bio-ethanol production) has been more successful in contexts where there are established institutions, cooperative concepts, and trust relations. In LDCs, long-term contracts with suppliers of raw materials are uncommon; yet having trust in stable price and supply is key for building up the value chain. The end user's trust that the technology works is also an essential part of the equation. Pointing to the case of a solar-water heater promoted in the Middle East as a simple, low-cost, proven, easy-to-replace technology for electric- or gas-fired boilers for water in household and industrial applications, an informant asserted that, "if trust is eroded from the first pilot, it's difficult to build it back". During the first wave of its introduction in Egypt, the system experienced many operational problems, which created a general perception that this technology was low quality. Potential users shunned the system. While neighbouring Jordan witnessed high adoption rates, reportedly linked with high trust in the device (due to having the quality assurance and testing infrastructure in place);

- 66) **Alignment Incentives Can Change Business as Usual.** Technology adoption and replication are more likely if there has been an influence in the policy space leading to a correction of market conditions. Going from the assumption that industry operates in an incentive environment, even if proven technology is available, "firms will continue with business as usual, unless there are alignment incentives". Shifts in this domain were associated with training public agencies that some technologies need special treatment to overcome the 'green premium' barrier associated with technology development and transfer (e.g. as seen in the HCFC phase-out and promotion of HFC-free energy efficient refrigeration and air conditioning systems in the Russian Federation and in the SolarChill project implemented in 4 African nations).

### 3.6 Key Challenges

*The review of projects and input from informants revealed ongoing challenges to consider in efforts to make the support provided for climate technologies even more effective, ideally spurring transformational change:*

- 67) **Dealing with COVID-19 Effects.** As a matter of first order, in their latest reports to the COP<sup>81</sup>, both Operating Entities highlighted the magnitude of effects of the COVID-19 crisis, and their pandemic response. Recognition of the immensity of these challenges, and elaboration of mitigating measures, are echoed in communications of their Implementing Agencies. At project level, delays in virtually every aspect of operations have been attributed to the COVID crisis (in Mexico: "it's becoming more challenging to find suppliers that can meet technical requirements, delivery times, guarantees and bond conditions, resulting in longer procurement processes...limiting purchases to only one supplier"; no new capacity-building or awareness-raising activities were carried out in 2020 "due to the pandemic"<sup>82</sup>; in Eswatini: "COVID-19 exacerbated existing project delays" (related to procurement, negotiation delays with governments in signing MoUs; shipping/customs clearance of SolarChill A units); since the pandemic's outbreak, work in the field with governmental or non-governmental partners has been "extremely challenging due to restrictions on movement", impacting project implementation<sup>83</sup>; in Sri Lanka: "delivery and instalment of imported equipment was stalled for months"<sup>84</sup>).
- 68) **Realistic Understanding of Absorption Capacity.** While the bulk of projects under review include capacity-building elements, the extent to which the provided inputs, TA, and technologies can be absorbed within 3-4 year project timeframes differs dramatically across settings ("SIDS and LDCs are vulnerable, with few resources, and their development capacity is very low"). An illustrative example is drawn from the GEF-supported, IFAD-implemented irrigation project in Jordan where beneficiaries (poor farmers) were not able to adopt the

<sup>81</sup> GCF/B.29/03 (7 June 2021) 10<sup>th</sup> Report of the Green Climate Fund to the Conference of the Parties of the United Nations Framework Convention on Climate Change <https://www.greenclimate.fund/sites/default/files/document/gcf-b29-03.pdf> and Report (30 September 2020) of the Global Environment Facility to the Twenty-sixth Session of the Conference of the Parties of the United Nations Framework Convention on Climate Change <https://www.thegef.org/documents/report-gef-26th-session-cop-unfccc>

<sup>82</sup> GEF 2021 Report to the COP (p144) regarding IDB-implemented project in **Mexico**: Entidad ejecutora del Proyecto de Promoción y Desarrollo de Tecnologías Eólicas Locales

<sup>83</sup> GEF 2021 Report to the COP (p146) regarding UNEP-implemented project in **Colombia, Kenya, Eswatini, Swaziland**: SolarChill Development, Testing, and Technology Transfer Outreach

<sup>84</sup> GEF 2021 Report to the COP (p151) regarding UNIDO-implemented project: Bamboo Processing for **Sri Lanka**

Continued...

agricultural practices nor make use of the new technologies being promoted during the project's implementation, despite its extension to a 7-year duration<sup>85</sup>. UNEP's experience with TNA echoes this message: reportedly, no countries have done another round of the TNA exercise on their own: TNA has made countries familiar with what they can do, but for the most part, it has "not been able to create a sustainable structure in the country so that TNA process could be reproduced and replicated". An informant advised, "you really need to consider the demand of a country, province, or community based on capacity and capability to absorb the technology and market size". Where there is no market to commercialize the technology, this stakeholder contended "it is not appropriate to transfer technology to them to develop", asserting that "all these initiatives and support for small countries and provinces that have limited population are not very meaningful". In technology transfer projects channelled into settings where there is insufficient capacity to absorb, the risk is that "it has to be run by outsiders" as there are few local people who can understand and carry on the work.

- 69) **Enabling Recipient Country 'Agency'**. Throughout the project documentation and exchange with informants, country ownership<sup>86</sup> is linked with achieving legitimacy, sustainability, and transformational change ("engaging and generating ownership on the part of national or local governments is critical to make the long-term objectives of a project - which are largely to be executed by the private sector - legitimate and sustainable"<sup>87</sup>). In exercising ownership, on the technology transfer front, recipient countries can benefit from (TNA) support in identifying their own needs and priorities and can actively set out to address these by tapping available tools, programmes, and projects (e.g. through Readiness Support, projects with technology elements, etc.).
- 70) On this landscape, the Financial Mechanism's Operating Entities are following the purposes for which they have been established, which are reflected in their missions, strategies, and programming directions. While the GCF was created to support developing countries' efforts to respond to climate change challenges, the GEF defines itself as a development fund in environment, which got a mandate from the UNFCCC to administer part of international climate funds. An informant explained, "the GEF is not fully congruent in its self-understanding and the mandate from the UNFCCC or any other Convention; furthermore, the GEF wants to achieve more with the money it has than the content of that mandate". Operating in the same space, their Implementing Agencies are observed as "jockeying around to get countries to pick areas where they have their realm of expertise" (although it was noted that in countries, like Thailand, where the GEF Focal Point, embedded in the Ministry of Environment, invites other ministries to apply for the STAR allocation, oversees a prioritisation process and "exercises a strong say" which functions to moderate the influence of the Implementing Agencies. On the GCF side, its concept of establishing Direct Access Entities (DAEs) was described as "transferring implementing agency functions from third parties to accredited entities" – which is expected to enhance the level of country ownership and oversight, according to the GCF-funded readiness project in The Bahamas<sup>88</sup>.
- 71) **Projects Versus System-Level Response**. The 2015 Paris Agreement has ambitious goals that call for radical emission reductions over the coming 30 years. In turn, the international community has generated a raft of initiatives, programmes, and projects to contribute to the world's Sustainable Development Goals (SDGs). While one informant declared that "everything we do needs to be consistent with the pathway of keeping

<sup>85</sup> p45, ¶125 and p51, ¶148/Recommendation #8, TE 2018, "Irrigation Technology Pilot Project to Face Climate Change Impact" documented considerable project delays that prevented the completion of most project activities and outputs. While the new equipment yielded promising results in terms of environmental and socio-economic benefits, most of the project's beneficiaries did not have time to use it in agricultural production during the project's operation – and there appeared to be no provisioning post-project to ensure beneficiaries and local service providers acquired the necessary understanding and capacity to apply climate-resilient agronomic systems and techniques, leading to the effective adoption and adequate use of the transferred technologies

<sup>86</sup> While this notion was not elaborated in interviews conducted for this assignment, from evaluations carried out by the Consultant on relevant projects, the following features were typically mentioned: project execution in national hands, activities administered through a national legal entity with an associated governance structure; creation of an advisory structure with key representatives expected to coordinate activities with those institutions seen as benefitting from a project's support and therefore having an interest in sustaining its benefits. Country ownership is typically "indicated" by participation in terms of human resources and financing.

<sup>87</sup> p64, Section 7.1, MTR 2018: "Climate Technology Transfer Mechanisms and Networks in Latin America and the Caribbean Project"

<sup>88</sup> p12, Readiness Proposal with CCCCC for the Commonwealth of Bahamas (December 2018) asserts that "direct access will enable proper reliance on and harmonization with national systems, plans, and priorities; help increase the speed of delivery of desired outcomes; eliminate transaction costs by 'domesticating' core activities; and potentially achieve better targeting of national priorities." <https://www.greenclimate.fund/sites/default/files/document/readiness-proposals-bahamas-ccccc-strategic-frameworks.pdf>

global temperature to a 1.5°C rise”, others pointed to the contradiction inherent in the treatment of climate as “a limited part of everything, as a subset of nice things that we can and must do, so then we come up with projects: a mass transit project, an energy project, and so on” – implying that such a compartmentalized, project management-driven approach is increasingly veering away from what is needed to tackle the immensity of the challenge. Informants rallied around notions that climate “is about changing mindsets”, “working at a system level”; “must be embedded in development” and incorporate a long-term perspective (a key challenge to grapple with: “doing something that affects mitigation or adaptation in the short-term but aggravates the situation in the long-term”).

- 72) Informants applauded the coherence of the GCF’s adamant focus on the scale of reduction of CO<sub>2</sub> emissions (in keeping with its mission), while others asserted that “prosperity and climate objectives need to be linked and integrated in a smart way”. Yet others noted that programming directions for GEF-7 and GEF-8 incorporate a complex, system-oriented vision, being translated into higher ambition levels, consistent with the urgency and scale of climate change. However, recipient countries, particularly LDCs, were described as having a high degree of political risk; this shapes the environment for technology adoption. Frequent changes in priorities, governments, civil servants, and broader societal conditions are seen to require adaptive responses built directly into project design (which is challenging to deploy in current protocols that “box inputs and outputs into results frameworks that are difficult to adjust”). The experience and achievements of the GEF-4/5 projects reviewed point to the need for more adaptability in time horizons and the overall project intervention model as well as a “higher risk tolerance in the whole value chain of support for technology transfer”.

## 4 Key Messages

- 73) **Urgency to reverse accelerating climate change demands a higher ambition level, which, in turn, seems to be bringing increased complexity and rigidity in projects designed to deal with the incumbent challenges. The resulting project architecture risks being misaligned with the dynamic nature of the recipient environment (which may hamper technology development and transfer) and may overlook opportunities for more effective context-dependent response strategies.** There is shared understanding of and conviction in the value of technology as a key instrument to address climate change (¶19). Operating Entities’ initiatives to scale up the level of investment for technology transfer to assist developing countries in addressing their technology development and transfer needs are evident under the PSP funding windows created in 2008 (¶10) and follow-on GEF-funded mitigation and adaptation projects with technology-related objectives (¶11), strengthened by GCF support that came online through its RPS and climate change portfolio (¶13).

In light of the IPCC’s recent report<sup>89</sup>, consensus and momentum are building around the urgent need to reduce GHG emissions, bolstering the case to assist vulnerable nations in mitigating and adapting to the increasingly unavoidable effects of climate change. The technology-centric “push” strategy reflected in GEF 4-/5 funded projects did not reach the envisaged outcomes for transfer and replication [¶60 ¶61]. While both Operating Entities have subsequently raised their ambition level [embodied in the GEF’s system-oriented, integrated programming directions and the GCF’s Updated Strategic Plan, both aimed at accelerating transformative change (¶17)], this approach is ushering in a level of complexity and rigidity that are mismatched with the agility required to adaptively respond to local contexts with a high degree of political risk, varying levels of absorption capacity (¶68), frequent changes in priorities, governments, civil servants, and broader socio-economic conditions that shape the environment for technology adoption and use (¶72).

Programmatic approaches could be seen as a positive enabler – with net benefits for enhancing accountability and the potential to scale up more rapidly [referring to a ‘cookie cutter’ approach (¶22) that requires little

<sup>89</sup> Launched 9 August 2021, this first instalment of IPCC’s 6<sup>th</sup> Assessment Report (AR6, to be completed in 2022) indicated climate change is “widespread, rapid, and intensifying”. Essential for “understanding where we are headed, what can be done, and how we can prepare”, this report offered a clear picture of past, present, and future climate — and updated the likelihood of crossing the global warming level of 1.5°C in the next decades unless there are “immediate, rapid and large-scale reductions in GHG emissions” <https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/>

adaptation for implementation in additional geographies/settings, thereby galvanizing replication and scaling up]. However, the perceived rigidity of the current project implementation model (¶172), which accompany such programmatic approaches, appears to be constraining the use of strategic levers that have proven effective for successful technology transfer and localization [agility, adaptive response built directly into project design, space for experimentation, unorthodox piloting; ¶17)]. Moreover, an underlying assumption that project contexts are relatively homogenous may be leading development actors to overlook the need for and value of selecting from a repertoire of strategies<sup>90</sup> (see **Table 2**) to allow for generally applicable approaches, where appropriate, and foster dexterity and localization in other settings, as reflected in project experiences with technology transfer considered in this review (¶17) and the academic literature regarding technology adoption and diffusion. Reviewing the experience and results of more recent GEF/GCF-funded projects with technology elements would undoubtedly also help for pinpointing factors and criteria that could be applied in filtering strategies.

**Table 2: Situational Strategies to Accelerate Climate Technology Action**

All can be effectively and efficiently deployed, depending on the context	Type of Strategy	Context for Application
	Cookie Cutter (industrialised)	No customization needed. Low Cost Proven modules that work irrespective of context
	Templates (standardized)	Generally applicable, requiring minimal customization to be highly effective. Some costs will be involved for each new setting.
	Niche Approaches	Fully tailored. High cost. Should only be used for tipping point contexts.
	Leveraging	Opportunistic. Due to tailoring, likely to be high cost. Can be prepared through effective scenario planning

- 74) **Achieving ambitious climate goals needs inter-actor collaboration and alignment. This could be usefully powered through stronger anchoring to the NDC to improve coordination and coherence and by encouraging the Financial Mechanism’s Operating Entities, in line with the Standing Committee on Finance (SCF)’s mandate, to improve effectiveness in addressing the technology-related elements of the Paris Agreement.** In a context where international- and national-level coordination have long been recognized as a necessity to achieve ambitious climate change goals<sup>91</sup>, the gap in collaborative work amongst national focal points has already been put forward to the TEC as an area for improvement. This gap is driven by various factors, including the proliferation of focal points (¶23). Given its “self-obligating” nature and legitimacy in reflecting national government priorities (¶36), bolstering linkages to a country’s NDC seems to be a logical trajectory for streamlining the diversity of actions and channelling sight towards its common goal, together with encouraging countries to align NDC/TNA prioritization with their requests for support to the Financial Mechanism, MDBs, and the private sector.

An informant asserted that “whatever is identified to be sourced from the GCF and GEF should be anchored in meeting the targets of the NDC”. This approach is consistent with procedures that have already been deployed by institutional actors to instil a direct link to national commitments (¶20). Building on the notion of creating incentives for alignment (¶66), the TEC should consider working closely with the SCF to improve the coordination and coherence of the Operating Entities of the Financial Mechanism, including to improve effectiveness in addressing the technology - related elements of the Paris Agreement. One informant suggested that the TEC, in partnership with the SCF, could explore the establishment of a common pool of GEF-GCF resources that would be easily accessible [e.g. through an existing structure like the CTCN, based on the

<sup>90</sup> Developed by the Consultant, inspired by Situational Leadership Theory, which provides guidance for transitioning from a highly directive to fully delegative orientation, in conjunction with the development of maturity (knowledge, competence, commitment) and looking to cues, such as the type of task, nature of the group, etc. Operationalizing this framework involves offering varying degrees of support and direction according to the level of competence (level of skill, experience, knowledge, or behaviour related to a specific task) and commitment (motivation to learn a task and perceived confidence in ability to learn). See [www.kenblanchard.com](http://www.kenblanchard.com)

<sup>91</sup> Amongst others researching climate governance, Hsu, A. and Rauber, R. (9 February 2021) point out the missed opportunities for deeper coordination that could result in more ambitious action in *Diverse Climate Actors Show Limited Coordination in a Large-scale Text Analysis of Strategy Documents*, Communications Earth and Environment (2, 30 <https://doi.org/10.1038/s43247-021-00098-7>)

argumentation that this would foster more permanent institutional integration, ¶36)]; for example, to convert Concept Notes into full-scale proposals. Such an approach was portrayed as obliging NDEs to talk to their counterparts (NDAs, GEF Operational Focal Points) to get an agreement and then work through the CTCN in order to concretely advance on the technology transfer agenda. This framework may also enhance the likelihood that bankable projects reach the point of actual technology transfer, under concessional or commercial support. Such an approach would be a practical step forward in the direction of COP requests for the Technology Mechanism and Financial Mechanism to work more effectively together (¶Error! Reference source not found.. This input was in no way meant to re-open an existing agreement/decision or suggest creation of a “technology window”.

- 75) **Bridging the gap in developing bankable projects could be accelerated by early-stage inclusion of financial actors, together with negotiating mutual understanding of finance and development objectives. Incorporating such an approach as standard practice within project exit strategies is key to reducing later funding barriers as well as embedding climate in development, with a long-term perspective.** While Technology Action Plans (TAPs) have made concrete progress in ensuring that the TNA exercise moves beyond an “unsubstantiated wish list” (¶34), there is still a gap for developing bankable projects, ready for financing (¶35). The key to bridging that chasm lays in incorporating financial actors early in the process, reflecting their pivotal role post-project (¶38) and creating a space for negotiating a common understanding of finance and development objectives<sup>92</sup>, as the basis for heightening prospects to align (i.e. data collection and the descriptions of plans that will eventually need financing) against mutually understood and embraced requirements. Ensuring that such an approach is included in project exit strategies as standard practice would mitigate subsequent funding barriers (¶43) as well as ensure that climate is “embedded in development” and incorporates “a long-term perspective” (¶71).
- 76) **There is widespread conviction that the private sector is the most significant source of capital for climate-related financing. Clarifying issues related to intellectual property rights (IPR) may help for channelling its resources, support, innovation, and creativity towards technology development and transfer. Leveraging the full potential of private sector participation also relates to drawing such actors in at the ‘right time’, through compelling value propositions, into contexts that enable agility and adaptive response consistent with the dynamism, absorption capacity, and complexity of recipient environments.** The Parties’ longstanding interest to unlock private sector support for technology development and transfer has, so far, not been effectively realised. Getting the timing ‘right’ for engagement, building trust, successfully orchestrating involvement through compelling value propositions (¶47), establishing programme/project contexts that enable agile responses (¶73) consistent with the dynamism, complexity (¶72), and absorption capacity (¶68) of the recipient environment (e.g. through optimizing project design/approval timelines; adaptive response built directly into project design (¶72), and clarifying issues related to intellectual property rights are necessary to effectively engage private sector actors.
- 77) **While the projects under review offered little visibility of gender mainstreaming measures and strategies that have proven key to accelerating technology development and transfer, the approach to ‘nudge’ and slowly advance on this agenda reflects the diversity of perspectives regarding the relevance and utility of its link with accelerating climate change action. Strengthening the link with vulnerability and resilience seems a pragmatic way forward. Given the perceived co-benefits stemming from community elements in many adaptation projects (which arguably reflect traditional gender roles in developing economies), this offers further entry points for emphasizing gender sensitivity.** Reflecting UN values and following the will of the COP (¶49), Operating Entities and their Implementing Agencies have incorporated gender responsiveness and stakeholder engagement into their policies, communications, and procedures (e.g. templates to apply for

<sup>92</sup> Thereby balancing ‘bankability’ (see Footnote 4642) with ‘governance of common-pool resources’ at the heart of addressing climate change challenge; refer to the life’s work of Nobel Memorial Prize in Economic Sciences winner (2009) Elinor Ostrom; e.g. (1999), *Coping with Tragedies of the Commons*, Annual Review Political Science (2:493-535) <https://doi.org/10.1146/annurev.polisci.2.1.493>

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Readiness Support, project information forms/project documents, and reporting frameworks), believing this will assure that gender-responsive and inclusive approaches are applied throughout project development and implementation. This approach of enhancing awareness, encouraging consideration, and obliging reporting on gender mainstreaming and stakeholder engagement appears to be ‘nudging’<sup>93</sup> action and slow advance, against the backdrop of diverse perspectives concerning the relevance of gender mainstreaming in accelerating transformative impact through technology transfer (¶153). While observing that the operationalisation of gender policies and guidance through on-the-ground action had ‘little teeth’ (¶150) – reflecting the context at the time of the PSP’s initiation that “gender aspects were less important” – this topic appears to gain more traction in adaptation projects [seen as able to leverage the notion of co-benefits pertaining to gender aspects; this assumes that (developing country) societies are embracing traditional gender roles (¶151)], suggestive of stronger entry point potential than those aimed at mitigation.

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<sup>93</sup> Nudge Theory (built on political theory and behavioural economics and sciences) was brought to prominence by Nobel Prize-winning economist R. Thaler (with C. Sunstein, in their 2008 book, **Nudge: Improving Decisions about Health, Wealth, and Happiness**) referring to influencing behaviour without coercion, offering insights into how to prompt people to take decisions that can be difficult but benefit them in the long term. These authors defined a nudge as an any aspect of the choice architecture that alters people’s behaviour in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not. [https://en.wikipedia.org/wiki/Nudge\\_theory](https://en.wikipedia.org/wiki/Nudge_theory)

## Annex 1: Stakeholders Consulted

#	Organisation	Informant	Current Function
1	Global Environment Facility (GEF), based in Washington, D.C., USA	(Ms) Chizuru Aoki	Leads engagement with 5 international conventions; oversees its climate change work, including through Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF)
2	Global Climate Fund (GCF), based in Incheon, South Korea	(Mr) Hansol Park	Multilateral Governance Officer
3	Climate Technology Centre and Network (CTCN), based in Copenhagen, Denmark	(Mr) Rajiv Garg	Regional Network, Climate Technology Centre and Network, Economy Division and Member of TEC Taskforce
4	(Pilot) Asia-Pacific Climate Technology Network and Finance Centre (ADB, UNEP), based in Philippines	(Mr) Xuedu Lu	Advisor, Regional and Sustainable Development Department, ADB Principal Climate Change Specialist, Climate Change Program Coordination Unit Regional and Sustainable Development Department
5	ACTFCN - African Climate Technology and Finance Centre and Network (implemented by AfDB), based in Cote d'Ivoire	(Mr) Ayanleh Daher Aden and (Mr) Guirane Samba Ndiaye	Senior Environment & Climate Finance Officer, Environment and Climate Finance Division, African Development Bank (AfDB)
6	Centre for Latin America and Caribbean (implemented by IDB, based in Washington, D.C., USA)	(Ms) Karla Espinoza and (Mr) Claudio Alatorre	Climate Change and Sustainable Development Sector, Inter-American Development Bank (IDB)
7	Project Coordinator for Lebanon's Technology Needs Assessment (TNA) and Member of Lebanese delegation to UNFCCC	(Ms) Léa Kai Aboujaoudé	Head of Climate Change Unit, Ministry of Environment
8	Works inside Ministry of Environment, which is GCF's Nationally Designated Authority (NDA) for Cambodia, UNFCCC Coordinating Officer in Cambodia and National Focal Point for the Inter-governmental Panel on Climate Change (IPCC)	(Mr) Sum Thy	Climate Change Department, Ministry of Environment and Climate Change Alliance (CCCA) Manager
9	GCF Accredited Entity Caribbean Community Climate Change Centre (5Cs), based in Belize	(Mr) Donneil Cain	Head of Project Development Unit
10	NDC Partnership In-Country Facilitator for Grenada	(Mr) Spencer Thomas	Ambassador and Special Envoy for Multilateral Environmental Agreements; lead negotiator for climate change and biodiversity; ex-member of CTCN Advisory Board
11	UNEP, based in Paris, France	(Mr) Mark Radka	Acting Director, Economy Division
12	UNEP, based in Bangkok, Thailand	(Mr) Sudhir Sharma	Focal Point, GEF CCM and Regional Liaison, CTCN, Asia Pacific Office
13	UNEP, based in Paris, France	(Ms) Ruth Zugman Do Coutto	GEF Focal Point for Climate Mitigation Projects, Economy Division
14	UNIDO, based in Vienna, Austria	(Mr) Stephan Sicars	Director, Environment Department
15	UNIDO, based in Vienna, Austria	(Mr) Tareq Emtairah	Director, Energy Department
16	Independent, based in The Hague, The Netherlands	(Mr) Frans Verspeek	Conducted Terminal Evaluation of UNEP's Phase 2 TNA project
17	Independent, based in Montreal, Canada	(Ms) Anne-Marie Verbeken	Conducted 2019 PSP Review for TEC



## Annex 2: Materials Consulted

### 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](https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/tn_meetings/40067a60235c4b1c9737e9abf532003a/e8a0bd09bec44237934ee7ed569b2d9d.pdf)
- UNFCCC Standing Committee on Finance (2017), Technical Paper on the 6<sup>th</sup> Review of the Financial Mechanisms  
[https://unfccc.int/files/cooperation\\_and\\_support/financial\\_mechanism/application/pdf/tp\\_6th\\_review\\_31oct\\_1130.pdf](https://unfccc.int/files/cooperation_and_support/financial_mechanism/application/pdf/tp_6th_review_31oct_1130.pdf)
- UNFCCC Technology Executive Committee, 22<sup>nd</sup> Meeting (20-23 April and 26 April 2021) Concept Note for Preparing a Technical Paper on Experiences and Lessons Learned from Support for Climate Technologies provided by the Operating Entities of the Financial Mechanism  
[https://unfccc.int/ttclear/misc/\\_StaticFiles/gnwoerk\\_static/tn\\_meetings/954b204c918f45629fcac696f7c0341d/8973108d71eb4d20b3d570eff56026e3.pdf](https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/tn_meetings/954b204c918f45629fcac696f7c0341d/8973108d71eb4d20b3d570eff56026e3.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](https://unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.33/2019/mtg4/S1_2_UNFCCC_COP24_25.pdf)
- Materials related to the TEC meeting (20-23 April 2021) <https://unfccc.int/ttclear/tec/meetings.html>
- Presentation by the GEF into TEC 22 meeting: GEF Support for Technology Transfer  
[https://unfccc.int/ttclear/misc/\\_StaticFiles/gnwoerk\\_static/tn\\_meetings/8fd01c60c1114246a64736b75af13701/870af041e1d845fba48da898d14aeb9.pdf](https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/tn_meetings/8fd01c60c1114246a64736b75af13701/870af041e1d845fba48da898d14aeb9.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](https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/tn_meetings/19cff07af05440fc95602c1fe4bd55c6/166f850ea2db4675a6e4499ce1fb0b46.pdf)
- Working Paper (2013) by Smita Nakhoda: Effectiveness of Climate Finance: A Review of the Global Environment Facility  
<https://cdn.odi.org/media/documents/8632.pdf>
- Briefing (2015) by Sam Barnard and Smita Nakhoda: Financing Climate Technology: Lessons from Efforts under the UNFCCC  
<https://cdn.odi.org/media/documents/10053.pdf>
- TEC Report (April 2019) by Anne-Marie Verbeken: Updated Evaluation of the Poznan Strategic Programme on Technology Transfer <https://unfccc.int/sites/default/files/resource/7e.pdf>
- TEC Report (December 2015) by Smita Nakhoda: Evaluation of the Poznan Strategic Programme on Technology Transfer: Final Report by the Technology Executive Committee <https://unfccc.int/resource/docs/2015/sbi/eng/16.pdf>
- TEC (10 February 2020) Rolling Workplan of the Technology Executive Committee for 2019-2022  
[https://unfccc.int/ttclear/misc/\\_StaticFiles/gnwoerk\\_static/TEC\\_Documents\\_doc/34ca4e8b224b4c1d9cebe374cb4d392b/349baae0106e47ae9e2b0d59c3c1d4e1.pdf](https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/TEC_Documents_doc/34ca4e8b224b4c1d9cebe374cb4d392b/349baae0106e47ae9e2b0d59c3c1d4e1.pdf)
- Active Technical Assistance Requests to the CTCN (2021) <https://www.ctc-n.org/technical-assistance/data>
- Lee, Woo Jin Lee and Rose Mwebaza (25 September 2020), The Role of the Climate Technology Centre and Network as a Climate Technology and Innovation Matchmaker for Developing Countries, MDPI, <https://www.mdpi.com/2071-1050/12/19/7956/htm>
- IADB (April 2021, Confidential) Poznan Strategic Programme Regional Report for Update on FY21 Technology Transfer Activities for the GEF Report to COP26
- IADB (2021, Confidential), 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 for the PCCB for the period of the 2021-2024 Workplan  
<https://unfccc.int/sites/default/files/resource/2021-4%20PCCB%20Communication%20and%20stakeholder%20engagement%20strategies.pdf>
- EY & Associés (20 August 2021, Advance Version) 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](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 (dated 30 September 2020) <https://www.thegef.org/documents/report-gef-26th-session-cop-unfccc>
- GEF Annual Reports submitted to COP (2008 to 2020) <https://unfccc.int/ttclear/support/poznan-strategic-programme.html>
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- GEF Good Practice Brief (2021/2) Senegal: Strengthening Climate Resilience through People Centred Approaches (GEF-5) [https://www.thegef.org/sites/default/files/publications/GEF\\_GoodPracticesBriefs\\_Senegal\\_r2%20%281%29%20%281%29.pdf](https://www.thegef.org/sites/default/files/publications/GEF_GoodPracticesBriefs_Senegal_r2%20%281%29%20%281%29.pdf)
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- GEF-7 Programming Directions (April 2018) <https://www.thegef.org/documents/gef-7-programming-directions> and GEF-8 Programming Directions (April 2021) [https://www.thegef.org/sites/default/files/council-meeting-documents/2021\\_04\\_22\\_First\\_Meeting\\_GEF-8\\_PD\\_Presentation.pdf](https://www.thegef.org/sites/default/files/council-meeting-documents/2021_04_22_First_Meeting_GEF-8_PD_Presentation.pdf)
- Green Climate Fund description (2017) <https://cdn.odi.org/media/documents/11851.pdf>
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- 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, Practical Manual for Mainstreaming Gender in Green Climate Fund Projects, August 2017 [https://www.greenclimate.fund/sites/default/files/document/guidelines-gcf-toolkit-mainstreaming-gender\\_0.pdf](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](https://www.greenclimate.fund/sites/default/files/document/gcf-spotlight-ldc_1.pdf)
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- CIF-Climate Investment Funds c/o The World Bank Group (2019) 10<sup>th</sup> Anniversary Report of Mobilizing Finance for Climate Action <https://www.climateinvestmentfunds.org/knowledge-documents/10-years-climate-action>
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- 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](https://www.unido.org/sites/default/files/files/2021-06/Thematic%20Synthesis_UNIDO%20Renewable%20Energy%20Evaluations%202016-2020_210406.pdf)
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UNEP DTU Partnership (June 2019) How to Transfer, Finance and Implement Climate Technology <https://unepdtu.org/how-to-transfer-finance-and-implement-climate-technology/>

KfW (June 2017) Gender Response Plan for FP041: Simiyu Climate Resilient Development Programme in Tanzania <https://www.greenclimate.fund/sites/default/files/document/gender-assessment-fp041-kfw-tanzania.pdf>

Global Gender and Climate Alliance (GGCA) and UNDP (2013) Policy Brief: Linkages between Gender and Climate Change <https://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/PB1-AP-Overview-Gender-and-climate-change.pdf>

## 18 Evaluation Reports for GEF-4 Cycle projects for implementation of Poznan Strategy Programme (PSP)

Note: Reports newly available since preparation of 2019 PSP evaluation for UNFCCC are highlighted in yellow

#	Geography	Implementing Agency	Country Type	Project Type	Project Identification	Report Type / Date
1	Cambodia	UNIDO	LDC	Technology Transfer	Using Agricultural Residue Biomass for Sustainable Energy Solutions	TE 2019
2	Chile	IADB		Technology Transfer	Promotion and Development of Local Solar Technologies	MTR 2017
3	China	World Bank		Technology Transfer	Guangdong Green Freight Demonstration Project	Results Report 2016
4	Colombia, Kenya, Swaziland	UNEP		Technology Transfer	SolarChill Development, Testing, and Technology Transfer Outreach	MTR, 2018
5	Jordan	IFAD		Technology Transfer	Irrigation Technology Pilot Project to Face Climate Change Impact	TE 2018
6	Mexico	IDB		Technology Transfer	Entidad ejecutora del Proyecto de Promoción y Desarrollo de Tecnologías Eólicas Locales	MTR 2015
7	Russian Federation	UNIDO		Technology Transfer	Phase out of HCFCs and Promotion of HFC-free Energy Efficient Refrigeration and Air Conditioning	TE 2018
8	Senegal	UNDP	LDC	Technology Transfer	Transfert de Technologie: Production de Matériaux d'Isolation thermique à base de Typha au Sénégal	MTR 2016 (project completed Dec 2018)
9	Sri Lanka	UNIDO		Technology Transfer	Bamboo Processing for Sri Lanka	MTR 2016
10	Thailand, Vietnam, Lao	UNIDO	LDC (Lao)	Technology Transfer	Overcoming Policy, Market and Technological Barriers to Support Technical Innovation and South-South Technology Transfer: The Pilot Case of Ethanol Production from Cassava	TE 2019
11	Cote d'Ivoire	AfDB	LDC	Technology Transfer	Construction of 1,000 Ton per Day Municipal Solid Waste Composting Unit in Akouedo, Abidjan	GEF Report to COP 2021, p 168-169
12	Global	CTCN		Network Building	2 <sup>nd</sup> Independent Review conducted by EY & Associés	Independent Review, 2021
13a	Asia-Pacific	UNEP and ADB		Network Building	Pilot Asia-Pacific Climate Technology Network and Finance Centre	TE 2020 (for the jointly implemented project with evaluation of primarily UNEP's components)

13b					Establishing a Pilot Center to facilitate Climate Technology Investments in Asia and the Pacific	MTR 2016 (covering only ADB's components)
14	Africa	AfDB		Network Building	African Climate Technology and Finance Center and Network (ACTFCN) <i>Extended - Under implementation until July 2021</i>	MTR 2016
15	European Territorial Cooperation	EBRD		Network Building	Finance and Technology Transfer Centre for Climate Change (FINTECC) <i>Extended - Under implementation until December 2022</i>	MTR 2017
16	Latin America and the Caribbean	IADB		Network Building	Climate Technology Transfer Mechanisms and Networks in Latin America and the Caribbean	MTR 2018 TE 2021
17	Global	UNEP		TNA	Technology Needs Assessment Phase II	TE 2020
18	Global	UNIDO		Technology Transfer	Promoting Accelerated Transfer and Scaled-Up Deployment of CCM Technologies through the CTCN	Completed TE expected by end August 2021; relied on GEF's description of achievement in report to UNFCCC June 2021, Annex 4

Annual Project Reports (2019) for GCF-funded projects with technology elements included in the analysis (those selected are only on projects implemented in SIDS and LDCs, as per the guidance from the UNFCCC Secretariat)

**Projects with Technology Elements implemented in SIDS (4)**

#	Geography	Theme	Project Name	Description
1	Maldives	Adaptation / Coastal community resilience	Supporting vulnerable communities to manage climate change-induced water shortages	Integrated water production and distribution technologies. Desalination water plants in 4 islands installed and made operational, using a grid-tied and / or off grid solar PV technology
2	Vanuatu	Adaptation / early warning	Climate Information Services for Resilient Development Planning	Technology/modelling-based and low-tech community-based CLEWS for specific hazards depend on data availability and relevant community resources. LIDAR sensor to modify existing SPC drone technology
3	Barbados	Cross-cutting water & energy	Water Sector Resilience Nexus for Sustainability (WSRN S-Barbados)	Photovoltaic Renewable Energy Systems and Natural Gas Microturbines. Potable Water Storage Systems
4	Mauritius	Mitigation Financial instrument	Accelerating transformational shift to a low-carbon economy	Technology-oriented Grid Absorption Capacity solutions. A loan scheme for PV adopters

**Projects with Technology Elements implemented in LDCs (11)**

#	Geography	Theme	Project Name	Description
5	Zambia	Adaptation / water & energy	Strengthening climate resilience of agricultural livelihoods in Agro-Ecological Regions I and II	Innovative water management technologies. Introduction of 158 boreholes with solar PV or biomass pumping technologies
6	Bhutan	Adaptation / alternative energy	Bhutan for Life	Rural alternative energy technologies (e.g. biogas, solar)
7	Bangladesh	Adaptation / water	Enhancing adaptive capacities of coastal communities, especially women, to cope with climate change induced salinity	Community level freshwater pond systems with filtration treatment technology (and including raising embankments). Water supply technologies. Pond Sand Filters (PSFs)
8	Malawi	Adaptation / early warning	Scaling up the use of Modernized Climate information and Early Warning Systems	Removing barriers to adoption of new practices and technologies (e.g. ICT/mobile technologies for EWs, weather advisories. Initiatives focused on transferring knowledge and technology via South-South cooperation
9	Senegal	Adaptation / early warning	Integrated Urban Flood Management Project	Installation in Greater Dakar of precise meteorological and hydrological monitoring tools
10	Benin	Adaptation	Enhanced climate resilience of rural communities in central & north Benin through implementation of ecosystem-based adaptation in forest and agricultural landscapes	Information and Communication Technologies will be explored to create mutual partnerships between complementary actors along the targeted value chains
11	Tanzania	Adaptation / early warning	Simiyu Climate Resilient Project	An ICT platform on climate change to increase generation and use of climate information
12	Ethiopia	Adaptation	Irrigation technologies	Building gender-responsive resilience to drought risk of the most vulnerable communities
13	Bangladesh	Mitigation / cooking	Global Clean Cooking Program	Clean cooking
14	Rwanda	Mitigation / cooking	Strengthening Climate Resilience Rural Communities	Investments in forestry, efficient technologies for cooking
15	Rwanda, Kenya	Cross-cutting – energy Financial instrument	KawiSafi Ventures Fund	Mobile technology and cloud-based data management. Innovative clean energy technologies. refined solar panel technologies, innovative remote monitoring technologies, mobile payment, data and systems, emerging credit scoring models and algorithms

**2019 Annual Project Reports for GCF-funded readiness support in SIDS (3) with CTCN as delivery partner**

#	Geography	Project Name	Delivery Partner	NDA / Focal Point
16	Bahamas	CTCN - Strategic Framework	UNIDO-CTCN	The Ministry of the Environment Housing
17	Mauritius	Climate Change Vulnerability and Adaptation Study for Port Louis	UNEP-CTCN	Ministry of Finance and Economic Development
18	Tonga	Development of an Energy Efficiency Master Plan for Tonga	UNEP-CTCN	Ministry for Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC)

**2019 Annual Project Reports for GCF-funded readiness support in LDCs (6) with CTCN as delivery partner**

<b>#</b>	<b>Geography</b>	<b>Project Name</b>	<b>Delivery Partner</b>	<b>NDA / Focal Point</b>
19	Cambodia	Technology needs assessment and action plans for the support of climate-friendly technology implementation in Cambodia's special economic zones	UNIDO-CTCN	Ministry of Environment
20	Lesotho	National framework for leapfrogging to Energy Efficient Appliances and Equipment in Lesotho (Refrigerators and Distribution Transformers) through regulatory and financing mechanism	UNEP-CTCN	Ministry of Energy, Meteorology and Water Affairs
21	Malawi	National framework for leapfrogging to Energy Efficient Appliances and Equipment in Malawi (Refrigerators and Distribution Transformers) through regulatory and financing mechanism	UNEP-CTCN	Environmental Affairs Department
22	Zambia	National framework for leapfrogging to Energy Efficient Appliances and Equipment in Zambia (Refrigerators and Distribution Transformers) through regulatory and financing mechanism	UNEP-CTCN	National Planning Department, Ministry of Finance
23	Myanmar	Strengthened drought and flood management through improved science-based information availability and management in Myanmar	UNEP-CTCN	Ministry of Environmental Conservation and Forestry
24	Timor-Leste	Enabling Readiness for Capacity Building on Installation and Maintenance of Solar PV in Timor-Leste	UNEP-CTCN	National Directorate for Climate Change (DNAC) Direcção Nacional para Alterações Climáticas (DNAC)

## Annex 3: Interview Protocol

### Background

*The Secretariat of the United Nations Framework on Climate Change (UNFCCC) has mandated the development of a Technical Paper on **experiences and lessons learned from support for climate technologies provided by the Financial Mechanism's Operating Entities (GEF, GCF)** with a view to enhance operation of the Technology Mechanism and collaboration between the Technology Mechanism and the Financial Mechanism*

*This Technical Paper is an input to the upcoming September 2021 meeting of the Technology Executive Committee (TEC), and may subsequently contribute to developing a Policy Brief to submit to the COP*

*All input provided to the Consultant is held confidence, not attributed to any individual or their institutions and used only for the purpose of distilling learning, enriching the perspectives of the broader stakeholder set, and contributing to the development of the Technical Paper, as a complement to information documented within Terminal Evaluations (TEs) and Mid-Term Reviews (MTRs) provided on the selected set of projects reviewed through this inquiry (see list in separate attachment)*

### Key Questions

1)	What is the relevance and impact of the support being provided ?
2)	What instances spring to your mind where implemented projects have been replicated (or have this potential) ?
3)	Are you aware of good examples where financial support been successfully linked with achieving sector technology development and transfer targets in recipient countries ?
4)	In which ways has gender mainstreaming proved useful in accelerating technology development and transfer action?
5)	What are the critical enabling conditions that underpin successful implementation of projects with technology elements (especially those with replication potential) ?
6)	What key challenges are being encountered in providing support for climate technologies ?
7)	Is there any further input or perspective that you would like to share ?