



Note

Technology Commitments in Climate Talks

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Summary

This note reviews the progress of promoting technology development and transfer to tackle climate change, as part of efforts under the United Nations Framework Convention on Climate Change (UNFCCC). In this area, a framework has been created by different legal instruments under the UNFCCC with the required modalities, procedures and guidelines under a well-defined governance structure that developing and Least Developed Countries (LDCs) can tap into.

Abstract

The United Nations (UN) treaties have long recognised the important role that developing and transferring environmentally sound technologies play in combating the climate crisis. It is upon this realisation that the United Nations Framework Convention on Climate Change (UNFCCC) included technology development and transfer as a basic requirement to combat the issue of climate change.

For any successful transfer, knowledge is necessary to successfully install, operate and maintain the equipment and in some cases practices that embodies a new technology. This includes capacity to choose and adapt know-how, experience and equipment to local conditions and integrate them with indigenous technologies. This is the background that has informed negotiations on technology development and transfer since the first Conference of the Parties in 1995.

Opinion is divided on the success of this process and whether it has a bearing on technology diffusion. That notwithstanding, a framework has been created by different legal instruments under the UNFCCC with the required modalities, procedures and guidelines under a well-defined governance structure that developing and Least Developed Countries (LDCs) can tap into. Under the Paris Agreement, for example, Parties agreed that the Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN), branches of the Technology Mechanism would work together to achieve the Paris Agreement Goal on technology development and transfer.

Parties through their National Designated

Entities (NDEs) should be provided with the necessary funding, training and capacity building to facilitate diffusion of climate technologies. If taken into consideration, there are going to be more climate technologies being implemented in both the developing and LDCs informed by an elaborate technology needs assessment and funding through the existing multilateral finance mechanisms.

Introduction

Technology transfer as defined by the IPCC, is a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, NGOs and research/education institutions. It comprises the process of learning to understand, utilize, and replicate the technology, including the capacity to choose it, adapt it to local conditions, and integrate it with indigenous technologies (IPCC, 2000).

In order to address the negative impacts of climate change, it was incorporated in the architecture of the UNFCCC that there is a need for a means of implementation for the different mitigation and adaptation actions. These means of implementation include finance, technology and capacity building. According to article 4 paragraph 3, the developed country Parties and other developed country Parties in Annex II shall provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed full incremental costs of implementing different measures towards climate change mitigation and adaptation including the reporting

requirements.¹

There are eight provisions of the UNFCCC with specific relevance to technology development and transfer. These are articles 4.1, 4.4, 4.5, 4.7, 4.8, 4.9, 9.2 and 11.1. According to article 4.1c, all Parties shall promote and cooperate in the development, application and diffusion, including transfer, of technologies that control, reduce or prevent anthropogenic emissions of greenhouse gases. Article 4 paragraph 5, the developed country Parties shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention.

A paradigm shift is key if gains are to be made in achieving the global mitigation goal of 1.5 degrees Celsius. This paradigm shift is dependent on innovation and technology advancement making technology a primary pillar in the fight against climate change. In order to create the required implementation framework for technology, every year from 1995, Parties to the UNFCCC meet at the Conference of the Parties (COPs) to explore how to enhance climate technology development and transfer.

The UNFCCC negotiations provide a political forum through which all countries may openly communicate their interests and challenges regarding enhancing climate technology action². There are key sessions of the COP that have been instrumental in technology development and

transfer.

Key Decisions for Technology Development and Transfer

During the first Conference of the Parties, a consultative process to develop a shared understanding of climate technology issues at the global level was started. Available information on technology development and transfer were explored including the technology needs of developing countries and how the international community was providing support. The type of technologies that could help countries reduce GHG gases and adapt to climate change were also considered.

From 1997 (COP 3) to 2001 (COP 7), countries improved their efforts by engaging in a consultative process on climate technology development and transfer, building upon the initial work. In 2001, during the 7th Conference of the Parties, countries created the technology transfer framework (known officially as the framework for actions to enhance the implementation of Article 4, para. 5 of the Convention). Countries also established the Expert Group on Technology Transfer (EGTT) to analyse technology development and transfer issues. The technology transfer was organized into five thematic areas, that is:

- Technology needs and needs assessments
- Technology information
- Enabling environments for technology transfer
- Capacity-building for technology transfer

¹https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

² <https://unfccc.int/ttclear/negotiations>

- Mechanisms for technology

The EGTT wrote a guidebook and held regional workshops which trained project developers in preparing project proposals for financing; explored how to monitor and evaluate the technology transfer framework's effectiveness; and developed strategies and evaluated options to accelerate and enhance technology development and transfer in the long term. In 2010, countries ended the EGTT's mandate when they established the Technology Mechanism. They requested the TEC to further implement the technology framework.

Parties also created a programme in 2008 called the Poznan Strategic Programme (PSP) on technology transfer. The purpose of the PSP was to scale up the level of investment for technology transfer thus helping developing countries to address their needs for climate technologies. Through the PSP, the GEF provides funding to climate technology development and transfer activities, that is, support to countries to undertake TNAs and develop technology pilot projects. The GEF initially created the programme to support;

Technology Needs Assessments (TNAs)

A TNA supports national sustainable development, builds national capacity and facilitates the implementation of prioritized climate technologies. Since 2001, more than 85 developing countries have undertaken TNAs to identify their technology needs for mitigation and adaptation. Since 2010, as part of their

TNAs, developing countries have also developed technology action plans (TAPs), which are concrete action plans for the implementation of their prioritized technology needs.

National Climate Technology Activities

According to the 2018 GEF report, in the reporting period, 23 CCM national projects with technology transfer objectives were approved with \$83.2 million in GEF funding and \$372.5 million in co-financing. For CCA, eight national projects to promote technologies for adaptation were approved with \$49.1 million from the LDCF and SCCF, and \$572.5 million in co-financing. Detailed project descriptions are provided in Annex 2 and Annex 3 of the 2018 Report of the Global Environment Facility to the Conference³. Guided by COP decision 2/CP.14, the call for proposals for technology transfer pilot projects under window two of the Poznan Strategic Program, issued in March 2009, led to the selection of 14 proposals. Only one proposal for CCA was received. This proposal was funded, along with three other proposals that included CCA elements. Total GEFTF⁴ and SCCF-B funding for the 14 pilot projects amounted initially to \$58 million, and total co-financing for these projects was initially more than \$195 million.

In 2010, countries scaled up efforts on climate technology by establishing the Technology Mechanism. The technology mechanism consists of two complementary bodies:

³ <https://undocs.org/FCCC/CP/2018/6>

⁴ Financing details can be found in the *Report of the Global Environment Facility on the elaboration of a*

strategic programme to scale up the level of investment in the transfer of environmentally sound technologies, SBI Document FCCC/SBI/2008/16.

The Technology Executive Committee (TEC)

This is the policy arm of the Technology Mechanism. It addresses policy issues related to climate technology development and transfer. It analyses these issues and provides recommendations that support country efforts to enhance climate technology development and transfer. The committee consist of 20 technology experts representing both developed and developing countries. It meets several times a year and hold climate technology events that support efforts to address key technology policy issues.

The Climate Technology Centre and Network (CTCN)

This is the implementation arm of the TM. It accelerates the development and transfer of technologies through three services: (i) Providing technical assistance at the request of developing countries on technology issues; (ii) Creating access to information and knowledge on climate technologies; (iii) Fostering collaboration among climate technology stakeholders via its network of regional and sectorial experts.

The CTCN is hosted by the UN Environment in collaboration with the United Nations Industrial Development Organization (UNIDO) and is supported by 11 partner institutions. Developing countries may send a request to the Centre through their national focal point called a national designated entity.

Both of these organisations work together. The Paris Agreement's central aim is to strengthen

the global response to the threat of climate change by keeping a global temperature rise this century below 2 degrees Celsius. Additionally, the agreement aims to increase the ability of countries to deal with the impact of climate change, and at making finance flows consistent with a low GHG emissions and climate resilient pathway.

In 2015 when the Paris Agreement was adopted, Parties strengthened the Technology Mechanism, requesting further work on: (i) Technology research; (ii) Development and demonstration; (iii) Endogenous capacities and technologies.

The Paris Agreement established a technology framework to provide overarching guidance to the Technology Mechanism. The TM and the Technology Framework (TF) are expected to support countries to limit the rise in global temperature and adapt to climate change. In article 10, paragraph 1, Parties share a long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions.

The Paris Agreement requires all Parties to put forward their best efforts through “nationally determined contributions (NDCs) and to strengthen these efforts in the years ahead. This includes requirements that all Parties report regularly on their emissions and on their implementation efforts. There will also be a global stocktake every five years to assess the collective progress toward achieving the purpose of the agreement and to inform further individual actions by Parties.

Technology Development and Transfer under the Paris Agreement

Article 10 of the PA focuses on Technology Development and Transfer. According to paragraph 1 “Parties share a long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions.” Paragraph 2 requires Parties to “*strengthen cooperative action on technology development and transfer.*”⁵ Paragraph 3 explicitly says that the TF created by paragraph 5 will serve the PA. The TF has already been elaborated under the PA with modalities for the implementation also concluded at the 24th Conference of the Parties in Katowice, Poland in 2018. According to the Paris Agreement, Technology and Financial Mechanisms of the UNFCCC, along with other actors or institutions, are required to support efforts to accelerate, encourage and enable innovation “*for collaborative approaches to research and development, and facilitating access to technology to developing country Parties.*”⁶ Support, including financial support, will also be provided to developing countries for strengthening cooperative action on technology development and transfer at different stages of the technology cycle, with a view to achieving a balance between support for mitigation and adaptation. Article 10 paragraph 6 states that the global stocktake will take information related to such support into account.

The purpose of the TF under the Paris Agreement is to provide overarching guidance to the work of the TM in promoting and facilitating enhanced action on technology development and transfer in order to support the implementation of the Paris Agreement in pursuit of the long-term vision referred to in its Article 10, paragraph 1. The elaboration of the framework since 2015 when the PA was adopted to 2018 when the rulebook on technology was concluded has focused on:

- The undertaking and updating of technology needs assessments, as well as the enhanced implementation of their results, particularly technology action plans and project ideas, through the preparation of bankable projects;
- The provision of enhanced financial and technical support for the implementation of the results of the technology needs assessments;
- The assessment of technologies that are ready for transfer;
- The enhancement of enabling environments for and the addressing of barriers to the development and transfer of socially and environmentally sound technologies;⁷

It was also decided under the Paris Agreement that the TEC and the CTCN shall incorporate the guidance contained in the technology framework and report to the CMA through the subsidiary bodies on their activities to support the implementation of the agreement. TEC has

⁵ Article 10 of the Paris Agreement

⁶ Paris Agreement - https://unfccc.int/sites/default/files/english_paris_agreement.pdf

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<http://unfccc.int/files/home/application/pdf/decision1cp21.pdf#page=9>

been submitting these reports since then. It was also decided that a periodic assessment of the effectiveness and adequacy of the support provided to the Technology Mechanism in supporting the implementation of the Agreement on matters relating to technology development and transfer would be undertaken. Other developments since 2015 include:

- The initiation of the elaboration of the scope of modalities for the periodic assessment of the TM in relation to supporting the implementation of the Paris Agreement at the 44th Subsidiary Body meetings in 2016;
- The continuation of the elaboration of the TF of the PA by SBSTA at COP 22. At this COP, the SBI continued to elaborate the scope and modalities of the periodic assessment of the TM in serving the PA. It also considered the Global Environment Facility's annual report on the PSP. They also continued to consider linkages between the TM and the Financial Mechanism. One of the documents shared at this particular COP was "Mapping of Climate Technology activities and initiatives relevant to the implementation of the PA", an important report for the implementation of technology development and transfer under the PA;
- At the 46th meeting of Subsidiary Bodies for implementation in 2017 at Bonn, the elaboration of the scope and modalities for the periodic assessment of the TM in relation to supporting the implementation of the PA continued. A report of the compilation and synthesis of submissions by Parties and observer organizations on scope and modalities for the periodic

assessment of TM was also shared to inform the process; The event also underlined the importance of technological innovation for achieving the goals of the PA. It showcased experiences and good practices related to technological innovation that countries can replicate and scale-up.

- At the 23rd Conference of the Parties, countries were provided with an opportunity to take stock of the TM's performance and activities in 2017. Also considered by the COP was the report of the independent review of the CTCN. Moreover, the COP 23 highlighted concerns from the DCs that developed countries had not done enough to meet their commitments made for the period up to 2020 (these commitments are separate to the PA, which applies only post-2020). There were two main concerns: first, developed countries had not yet delivered the promised \$100 billion per year in climate finance agreed in 2009 at Copenhagen. Second, the Doha Amendment had still not been ratified by enough countries to bring it into force.;
- At the 48th meeting of Subsidiary Bodies of Implementation in April 2018 UN Environment's management response to the independent review of the CTCN was considered. Also availed for Parties was the initial draft of the of the TF.

COP 23 requested the TEC and the CTCN to include in their joint annual report to the COP, having consulted with the high-level champions thereon, recommendations for Parties and other organizations on ways forward and necessary actions to be taken based on the outcomes of the technical expert meetings (TEMs).

COP 24 Outcomes on Technology

The technology agenda items at COP 24 included: TF under Article 10 paragraph 4 of the PA subsidiary body for scientific and technological advice (SBSTA); joint annual report of the TEC and CTCN (SBSTA); scope of and modalities for the periodic assessment of the effectiveness and adequacy of the support provided to the TM in relation to supporting the implementation of the Paris Agreement (SBI); and linkages between TM and Financial Mechanism. Though with some give and takes, all these agenda items were concluded.

Key Interests for DCs and LDCs

On the Technology Framework (TF), the interests of the DCs and LDCs, was to ensure the TF strengthens support, including financial support provided to developing countries for strengthening cooperative action on technology development and transfer at different stages of the technology cycle. They also wanted the facilitation of the implementation of the TF to be given to the Secretariat including provision of financial support to the Secretariat to undertake its facilitative work. All these were achieved except the finance part which developing countries considers weak. In the decision, the paragraph on financial support only request that the actions of the secretariat under the decision be undertaken subject to availability of financial resources.

When it comes to the actual TF annexed to the COP 24 decision (Rulebook)⁸, developing

countries were keen on avoiding strange terminologies which have not been clearly defined like ‘Technology Providers.’ They were also keen on having ‘public sector’ included under the key theme “Innovation”, which was a contentious issue. This was also achieved, with the final text reading “*Promoting partnerships between the public and private sector in the development and transfer of climate technologies.*” The private sector in the DCs and the LDCs are not well developed especially when it comes to technology development. Other than not having well developed private sector, the existing private sector has not been able to understand the interface between technology and climate change and therefore not able to effectively engage. This is why the inclusion of the public sector was very important for the DCs and LDCs.

On the scope of and modalities for the periodic assessment of the effectiveness and adequacy of the support provided to the TM in relation to supporting the implementation of the PA, the agenda item was given due consideration after the intervention by the Africa Group of Negotiators to stop the apparent efforts to derail the agenda. For effective implementation of technology development and transfer under the PA regime, the support (finance and capacity building) to the TM should be effective and adequate. The DCs and LDCs understand that the assessment will be key in facilitating this support. The first periodic assessment will therefore be initiated in November 2021 with a view to completing it in November 2022. The outcome of the periodic assessment will serve as

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https://unfccc.int/sites/default/files/resource/CMA2018_03a02E.pdf

an input to the global stocktake to guide an improved effectiveness and enhanced support to the TM in supporting the implementation of the PA.

The other interest of the LDCs and DCs related to the TM is the consideration of the alignment between processes pertaining to the review of the CTCN and the periodic assessment which will be considered in COP 25. The significant work already achieved in technology development and transfer is credited to the work of the CTCN and therefore aligning the two is critical. Together, the SBSTA and the SBI already considered the performance and activities for 2018 of the different bodies of the TM, the TEC and the CTCN. In addition, the COP continued to consider linkages between the TM and the Financial Mechanism.

Collaboration of National Designated Entities (NDEs) (CTCN) and National Designated Authorities (NDA) (Multilateral Funds), especially in the DCs where they are much needed, is picking up taking in to account on-going national processes and national planning. NDEs in several DCs and LDCs have applied for the GCF readiness financing, a great stride towards the implementation of the Paris Agreement. The readiness financing will facilitate the capacity building and the establishment of the relevant infrastructure and institutional arrangement for technology development and transfer. This agenda item was destined for closure in COP 24 but DCs fought (even at the risk of applying rule 16 – no work done)⁹ to ensure it delivers as intended. The decision text has very important outcomes, that

are;

- Invites developing country Parties to seek support from the CTCN to develop and submit technology-related projects;
- Enhance information sharing among NDEs, NDAs and GEF focal points;
- To take stock of progress in strengthening the linkages between the Technology Mechanism and the Financial Mechanism with a view to recommending a draft decision on this matter—to be revisited in COP 26.
- Identification of the information to be provided by Parties in accordance with Agreement Article 9.5 (ex ante finance transparency), matters relating to the Adaptation Fund, and setting a new collective quantified goal on finance.
- Scope of and modalities for the periodic assessment of the TM, and the TF.

The Joint TEC-CTCN Annual Reports

The SBSTA and the SBI considered the joint annual report of the TEC and the CTCN and recommended draft decision thereon for consideration and adoption at COP 24. According to the 2018 report which is also the latest report, the TEC and the CTCN in 2018 continued to support activities related to technology needs assessments (TNAs), including by working together with the African Countries (ACs) and the LDCs Expert Group (LEG) to consider how countries can align

⁹ Under rules of procedure, rule 16 indicates that a consideration of an agenda has not been completed and

therefore the agenda shall be included automatically in the next ordinary session

TNAs with national adaptation plans (NAPs)¹⁰. This is very important for developing countries whose priority is adaptation compared to mitigation. Paris Agreement is implemented through the NDCs which the NAP being the principle document for implementing the adaptation component of the NDC. Though NDCs were primarily a mitigation tool, developing country NDCs incorporated adaptation into their NDCs.

Gender considerations have also been at the core of the developing country Parties interest. According to the report, TEC and the CTCN participated in the gender dialogue to discuss how to integrate gender considerations into their work. The report confirms that the TEC and the CTCN will continue to work together in 2019 under the guidance of the COP to support countries in implementing the Paris Agreement. They will also continue to support Parties in implementing the technology elements of their nationally determined contributions (NDCs) and NAPs.

On the activities and performance of the TEC in 2018, the report noted that during TEC's 16th meeting, it held a thematic dialogue on the promotion of climate technology incubators and accelerators in developing countries¹¹ as well as a joint session with the Executive Committee of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts. These two aspects are very important as far as addressing climate change in concerned in the developing world. While technology transfer

has always been viewed from the lens of technology being transferred from the developed to the developing countries, the intention was the transfer of technology both ways, that is, North to South and South to North. Local problems are also effectively solved by local technologies hence the need to incubate local patents. On Loss and Damage, many developing countries are vulnerable to the negative impacts of climate change some of which can only be addressed using technology. It is therefore important to look at the interface between technology and loss and damage especially in the Paris Agreement regime to a reduce losses incurred due to disasters associated with the negative impacts of climate change.

The rolling workplan of the TEC for 2016-2018 was agreed upon at the 12th meeting of the TEC, updated at the 14th Meeting and further updated at its 16th Meeting with new activities¹². According to the 2018 joint report, the updated rolling workplan addresses the new mandates and guidance from the COP and the subsidiary bodies and aims to maintain the relevance and effectiveness of the work of the TEC in accordance with its mandates and functions. The activities in the workplan are divided into three workstreams and the six thematic areas identified by the TEC have been maintained, that is, adaptation; climate technology financing; emerging and cross-cutting issues; innovation and RD&D; mitigation; and TNAs. The three workstreams are:

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https://unfccc.int/sites/default/files/resource/SB_2018_2.pdf

¹¹ http://unfccc.int/tclear/events/2018_event2.

¹²

http://unfccc.int/tclear/misc/_StaticFiles/gnwoerk_static/TEC_documents/844c23809412457d9486aa29c3045e5e/a96f1853d3f04cc6bc28f96d82ce620d.pdf.

- Analyse technology issues and provide policy recommendations;
- catalyse support and facilitate and promote technology cooperation and partnership to scale up the implementation of actions;
- work in collaboration with the CTCN to promote coherence and synergy within the Technology Mechanism.

While highlighting the activities of the CTCN up to 2018, the report notes that as of October 2018, the CTCN has engaged with 85 developing country Parties to address a total of 210 requests for technical assistance. Towards the end of the third quarter of 2018, the responses to 52 such requests had been successfully completed, the responses to 39 requests were being implemented, the response plans for 24 requests were being designed and 23 requests were under review. The remaining requests had been withdrawn or recalled by the relevant NDEs, deemed ineligible by the CTCN or classified as eligible but not prioritized (owing primarily to CTCN-internal financial constraints), and are not reflected in the figure below¹³.

On the basis of guidance from its Advisory Board, the CTCN has placed greater emphasis on highlighting the impacts of its technical assistance services in relation to, for example, climate change adaptation and mitigation, relevance to country Nationally Determined Contributions (NDCs), and the Sustainable Development Goals (SDGs).

In 2018, the Climate Technology Centre (CTC) surveyed partners, implementers and NDEs that

were involved in its first 40 completed technical assistance interventions. Analysis of the data gathered, which remain subject to further review, enabled the CTC to determine a series of preliminary indicative findings on the anticipated quantitative impacts of the interventions over a period of approximately 10 years. The total cost of the technical assistance was approximately USD 5 million, and highlights of the analysis included:

● **Activities:**

- 130 workshops, building the capacity of 2,400 people across 160 institutions;
- 51 projects implemented, deploying 100 technology types as a result of 40 CTCN technical assistance interventions;

● **Estimated impacts:**

- Approximately USD 700 million in anticipated investment leveraged as a result of technical assistance activities;
- An estimated 110 million tonnes of GHG emissions (CO₂) equivalent emissions likely to be reduced or sequestered annually as a result of projects supported by technical assistance over a 10-year period;
- An estimated 85 million people with improved livelihoods as a co-benefit of anticipated actions based on CTCN technical assistance interventions.
- Approximately \$40 million in avoided costs

The requests to the CTCN cover both climate

¹³
https://unfccc.int/sites/default/files/resource/SB_2018_2.pdf

change adaptation and mitigation, with 32 per cent focused on adaptation, 54 per cent focused on mitigation and 14 per cent relating to both mitigation and adaptation. The requests are well distributed geographically, with 87 requests received from Africa, 66 requests from the Asia-Pacific area, 47 from Latin America and the Caribbean, and 4 from Eastern Europe. Approximately half (47%) of the technical assistance requests are directly related to recommendations and priorities identified in country TNAs. There is also an increasing emphasis on direct alignment between technical assistance requests and country NDCs and NAPs. Based on successful past technical assistance and regional trends with high impact, the CTCN prioritises some themes which countries should look at when applying for technical assistance. A full list of CTCN technical assistance is available on the CTCN website including:

- Mainstreaming gender in energy systems in West Africa;
- Coastal zone adaptation in West Africa;
- Appliance efficiency standardization in Southern Africa;
- Refrigeration and air conditioning in Ghana, Kenya, Mauritius and Namibia.

It was agreed though that in future, the report will be submitted to both CMA and the COP given that matters pertaining to the implementation of the Technology Framework and the Paris Agreement in general fall under the CMA. Subsequent reports will also include progress on and use of guidance provided by the Technology Framework. If developing Country Parties, especially ACs want to benefit more, they should be keen to benefit from provisions of the Technology Mechanism, especially

services of the CTCN. This means that they should work very closely with the NDEs to be on the know and benefit from the available opportunities.

Further implications of the PA rulebook

Other than the areas highlighted above, there are further implications of the rulebook aimed at furthering climate action through technology in the PA regime. This includes guidelines that relate to:

- Defining the process for establishing new financial targets from 2025 onwards to follow up on the current target on mobilizing US\$100 billion per year to grant assistance to developing countries. Technology forms an integral part of the means of implementation and will be instrumental in the development of the DCs and LDCs towards a low-carbon pathway
- How to assess effectiveness of global climate action in 2023. The global stocktake will be instrumental in assessing the effectiveness of the global stocktake. As the key recipients, these additional guidelines could facilitate enhanced support especially if we have the required readiness.
- How to assess progress on the development and transfer of low-carbon technologies.

This is a very significant component for developing country especially in the Paris Agreement Regime. The DCs and LDCs are just in their industrial phase with many countries investing in large infrastructural projects. Low

carbon technologies are key to avoiding the fossil fuel intense pathway used by the developed countries. It is therefore important to assess the development and transfer of these technologies.

Technology and the Enhanced Transparency Framework

In order to track the progress in technology development and transfer, an elaborate MRV framework is key. The enhanced transparency framework which is going to facilitate reporting under the Paris Agreement already has a section on technology development and transfer. In chapter 5 (D) of the MPGs for the enhanced transparency framework, Parties are required to report information on support for technology development and transfer provided under article 10 of the Paris Agreement. It is explicit in the MPGs paragraph 118 that developed country Parties shall provide the information pursuant to Article 13 paragraph 9 – developed country Parties shall, and other Parties that provide support should, provide information on financial, technology transfer and capacity-building support provided to developing country Parties under Articles 9, 10, and 11 – in accordance with MPGs contained in chapter 5¹⁴. Information on support for technology development and transfer provided under article 10 of the Paris Agreement, including, to the extent possible, qualitative and/or quantitative information:

- Strategies employed to support technology development and transfer, including case studies;

- Support provided at different stages of the technology cycle;
- Support for the development and enhancement of endogenous capacities and technologies of developing country Parties;
- Efforts to encourage private sector activities related to technology development and transfer and how such efforts support developing country Parties;
- Efforts to accelerate, encourage and enable innovation, including research, development and deployment efforts, and collaborative approaches to research and development;
- Knowledge generated.

Parties are also expected to provide information on quantitative and/or qualitative in a common tabular format on measures or activities related to support for technology development and transfer, implemented or planned since their previous Biennial Transparency Report.

Some of the DCs concerns under this agenda item includes the lack of experience on some of the reporting formats used by the developed countries to report their Biennial Reports and Inventory reports; what the starting point should be in the development of the reporting tables in light of the different experiences or lack of it; how to capture the flexibility provisions in the envisioned tabular formats; and how to ensure the training programme for technical experts participating in the technical expert review accommodates the different

¹⁴ Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement.

circumstances of the LDCs in particular.

Way Forward

NDC is the framework through which the Paris Agreement is being implemented. The architecture and methodology of the Technology Framework must fit in the NDC framework for it to receive support under the Paris Agreement and even for reporting to be possible. The way forward for the developing countries should include incorporating the actions generated from the latest technology assessment into the country's NDC and where necessary the National Adaptation Plan which is the policy framework for implementing the adaptation pillar of the NDCs. NDCs from developing and least developed countries are bias in favour of adaptation despite NDCs being mitigation oriented. This will ensure that countries can effectively report technology and financial support that they need and have received for technology development and transfer.

Other pundits argue that, even though not much progress has been made in climate negotiations on technology since 1992 when the UNFCCC was adopted, the diffusion of climate change mitigation technologies to developing countries has increased dramatically over the last 20 years (Glachant, *et al* (2016)). However, the how, and at how much, questions are always overlooked in such conversations. The how interrogates whether these technologies are executed by the local players or the same international players who are supposed to facilitate the transfer, and whether the required capacity is created to facilitate uptake of the technologies. The how much, on the other hand, interrogates at what cost these technologies diffuse into the

developing countries. If not subsidized, these technologies are most of the time very costly and are therefore funded by loans by the recipient country. The UNFCCC is clear on the overall goal in addressing climate change and the required means of implementation. The Convention states that in order, for developing countries, to address climate change, developed country Parties must provide them with the necessary technology. This technology development and transfer should be financed within the Finance Mechanism under the Convention and necessary capacity for their uptake provided. Developing Country Parties therefore have a right to demand the transfer of such technologies after undertaking an elaborate technology needs assessment. The technology transferred should be mature enough to ensure that the developing world is not a dumping site for failed technologies or a testing ground for new technologies. Developed Countries should also support local based innovation centres to promote development of local technologies patented to address local problems. The national capacities are also key for Parties to effectively tap into the opportunities presented by the Technology Mechanism. For African Negotiators, linkages between the Technology Mechanism and the Financial Mechanism of the Convention should be of interest to ensure that there are enough financial resources available with access modalities that correspond with the capacities of both developing and least developed countries. Other areas of priority are the interface between technology development and transfer and: Loss and Damage; Climate change education, training, public awareness, public participation and public access to information (Art 12); Transparency (Art. 13); and Implementation and compliance (Art. 15). Gender issues are also key factors that must be

noted since technology needs for both women and men are different.

Recommendations

In order to achieve the climate change goals, policy and practice must go together. A lot has been achieved in creating the required legal, policy and institutional frameworks under the UNFCCC. DCs and LDCs must therefore establish a corresponding policy, legal and institutional frameworks at the country (and regional) level to facilitate practice. Both the academia, the private sector and the public sector must work together to identify the technology needs alongside the establishment of innovation centres to facilitate the development and transfer of climate technologies. Since the DCs will have to report on technology development and transfer support needed and received with a voluntary provision for the LDCs, an in-country MRV system will also be key. Other specific recommendations are provided below.

- The annual reports of the TEC and CTCN are rich and informative in terms of progress in the implementation of technology development and transfer. People from developing countries should therefore read, appreciate/critique, and utilize the annual reports as this would help them identify areas of opportunities;
- Developing Country Parties should also put in place measures to move forward with the outcomes of negotiations or dedicated events, for example, in the COP 24 decision, the TEC and the CTCN have been requested to incorporate the guidance contained in the technology framework into their respective

workplans and programmes of work. This need to be picked up by the National Designated Entities.

- DCs and LDCs should utilize other products and outcomes of TEC/CTCN, for example the TNAs which can still be used to influence diffusion of technologies outside the UNFCCC framework, and also look at the linkages between the TEC/CTCN and other UNFCCC Bodies like the Standing Committee on Finance (SCF), Consultative Group of Experts (CGE) etc;
- Developing Country Parties should explore possible complementary support (from relevant stakeholders and institutions both at the national level and internationally) for NDE to enable access to TA and match making support by CTCN.
- On Transparency, DCs and LDCs should start working on the effective ways to capture data on support needed and received. It is only by engaging in the process the process that they will get a tool that can demonstrate high needs to attract high support. This concerns both finance as well technology development and transfer.
- DCs and LDCs must reiterate that there is no climate change activity that is not reliant on technology. Both mitigation and adaptation actions are technology dependent. They have an opportunity to demonstrate technology needs under both mitigation and adaptation to ensure support channelled to the thematic areas also covers technology

- Capacity Building is primary for uptake of different climate technologies, for example, the types of new technologies available and the use of those technologies. Capacity building for the NDEs should also be given priority

The 2019 GEF report will be key for Developing Country Parties since it will capture progresses made in implementing the Technology Framework to support the implementation of the Paris Agreement.

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