INFORMATION NOTE NUMBER 18. MARCH 2011

The Climate Technology Mechanism: Issues and Challenges

Introduction

The agreement to establish a new Technology Mechanism is one of the concrete outcomes of the Cancun climate change conference (2010) that requires a closer look. The main goal of the Mechanism is to enhance action for technology development and transfer, particularly to developing countries, in support of climate change mitigation and adaptation. It is premised on the recognition that the large-scale deployment and diffusion of these technologies is pivotal to worldwide efforts to reduce greenhouse gas emissions.

However, the Mechanism faces many challenges before it can become operational in 2012. For instance, it is not clear how well resourced it will be. In addition, many of its functions need to be further 'fleshed out' and a number of institutional issues such as the relationship between its two main components – the Technology Executive Committee and the Climate Technology Centre and Network – still need to be agreed. The objective of this information note is to shed some light on the main features and functions of the Technology Mechanism and on some of these challenges.

1. The Technology Mechanism: Background and General Considerations

1.1 From Bali to Cancun: the Road towards Creating the Technology Mechanism

Technology transfer has been a key objective of the United Nations Framework Convention on Climate Change (UNFCCC) since its inception. Article 4.5 of the Convention requires developed countries to "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". Furthermore, Article 4.7 establishes a clear link between the extent to which developing countries will implement their commitments under the UNFCCC and the effective implementation by developed countries of their commitments relating to financial resources and the transfer of technology.

For many years, developing countries have been demanding concrete steps and measures to operationalize these provisions in a meaningful way. Developed countries, for their part, have pointed to the lack of enabling environments and limited absorptive capacities in recipient countries as the main barriers to technology transfer. Difficulties in reaching a common definition of technology transfer and disagreements over the role of intellectual property rights (IPRs) were recurrent issues in these discussions.

In 2007, the Bali Action Plan, agreed at the 13th Conference of the Parties (COP) of the UNFCCC, reaffirmed the centrality of technology development

ICTSD
International Centre for Trade and Sustainable Development

and transfer. Article 1 makes it one of the four priority areas to be addressed in discussions aiming at the "full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012". It called for:

> Enhanced action on technology development and transfer to support action on mitigation and adaptation, including, inter alia, consideration of: (i) *Effective mechanisms* and enhanced means for the *removal of obstacles* to, and provision of financial and other incentives for, scaling up of the development and transfer of technology to developing country Parties in order to *promote access to affordable environmentally sound technologies* (emphasis added).[1]

In August 2008, the G77 group of developing countries and China presented a comprehensive proposal for a Technology Mechanism under the UNFCCC, which included a Multilateral Climate Technology Fund inspired by the experience of the Multilateral Fund for the Implementation of the Montreal Protocol on Substances That Deplete the Ozone Layer (1990).[2] Intensive negotiations took place on the basis of this proposal and submissions made by other countries.[3]

The Copenhagen Accord (2009) signalled the growing consensus on the creation of a Technology Mechanism, as signatories agreed to establish a "Technology Mechanism to accelerate technology development and transfer in support of action on adaptation and mitigation".[4] The Accord further specified that the Mechanism will "be guided by a country-driven approach and be based on national circumstances and priorities".[5] From Copenhagen to Cancun, parties further fleshed out the precise mandate, structures and functions of the new entity, though ultimately a number of issues, in particular institutional ones, remain unresolved and need to be settled by the Durban climate change conference in December 2011.

Thus, the decision to create the Technology Mechanism at the Cancun Conference represents the culmination of a three-year negotiating process since COP 13 in Bali. Ultimately, the establishment of the Technology Mechanism represents a potentially positive development, particularly in view of the long-standing demands by developing countries for the institutional strengthening of the technology transfer 'pillar' under the UNFCCC. More broadly, it has the potential to become an important meeting point for developed and developing countries to work together in a positive spirit to accelerate the deployment and transfer of technologies for climate change mitigation and adaptation.

1.2 Some General Considerations

The process leading to agreement on the establishment of a Technology Mechanism witnessed a vigorous debate that involved a number of arguments familiar to international discussions on technology transfer. This also took place in the shadow of an emerging 'clean energy race' between industrialized countries and a number of emerging economies such as China and India.

1.2.1 Technology transfer or technology diffusion?

In this context, industrialized countries and private sector organizations voiced their well-known misgivings during the negotiations about the concept of 'technology transfer', preferring the term 'technology diffusion'. They consider the latter as reflecting real world dynamics more accurately, whereby technology is not simply 'transferred' from one entity, firm or institution, to the other but 'diffused' through a variety of channels where markets and private firms play a key role.[6] As underlined by the World Business Council on Sustainable Development, business "understands technology transfer to be technology diffusion, a means for the deployment of new equipment, products, processes or knowledge, previously not accessed by a recipient country", adding that "the private sector diffuses technology on a commercial basis every day".[7]

For their part, developing countries have remained attached to the concept of 'technology transfer' enshrined in the UNFCCC. They also point out that a significant share of clean energy technologies are developed by public institutions – such as public research centres and scientific institutions – using public funding, thus dispelling the argument that technology is solely in the hands of the private sector.

Against this background, it is interesting to note that the entity created at Cancun is ultimately a 'Technology Mechanism' and not a 'Technology *Transfer* Mechanism.' It should also be noted that previous significant COP decisions on technology transfer, in 2002 (4/CP.7) and 2007 (4/CP.13), include a reference at the outset to chapter 34

1 Paragraph 1(d), Bali Action Plan, UNFCCC (2007).

2 G77 & China (2008).

3 Seligsohn et al. (2009).

4 Abdel Latif (2010).

5 Paragraph 11, Copenhagen Accord, UNFCCC (2009).

6 However, it is interesting to note that the terminology of 'transfer of technology' is often used in developed countries. In the US, for example, the National Technology Transfer and Advancement Act, or NTTAA, United States Public Law 104-113, was signed into law on 7 March 1996.

7 WBCSD (2010).

of Agenda 21 (1992) on the transfer of environmentally sound technologies (ESTs), whereas the decision creating the Technology Mechanism does not and only refers to the relevant provisions of the UNFCCC.

1.2.2 The shadow of the 'clean energy race'

In the course of climate negotiations, industrialized countries began to increasingly perceive emerging economies such as China, India and Brazil as competitors in the 'clean energy race'.

In September 2010, the US Steelworkers Union filed a trade complaint against China with the Office of the United States Trade Representative (USTR), accusing it of unfairly subsidizing its clean energy industry. The Union highlighted several areas of policies used by China that they consider violate WTO free trade rules.[8]

In November 2010, US Energy Secretary Steven Chu said that the success of China and other countries in clean energy industries represented a new "Sputnik Moment" for the US, and required a similar mobilization of American innovation.[9] In his State of the Union Speech in January 2011, President Obama used the same analogy to the "Sputnik moment" in his call to encourage American innovation in clean energy.[10]

In this context, industrialized countries, particularly the US, became wary of concessions in the technology discussions which could adversely impact their competitiveness. These concerns, in particular regarding China's growing technological capabilities and 'indigenous innovation' policies, cast a shadow over the global negotiations on the transfer of clean energy technologies in the run up to Cancun.

1.2.3 Addressing the diversity of technological needs and capabilities

Another challenge in the technology discussions concerned how to meet the diversity of technological 'needs', as technologies tend to be country and sector specific. This diversity makes it particularly challenging to devise effective international arrangements that can address the needs of a large heterogeneous grouping of 'developing countries', which in reality encompasses middle-income countries – with advanced technological capabilities – but also a large number of Least Developed Countries (LDCs).

As a result, the decision creating the Technology Mechanism underlines that "technology needs must be nationally determined, based on national circumstances and priorities".[11] References to national needs, circumstances and country-driven approaches are recurrent throughout the mandate to ensure the primacy of national needs and country ownership in guiding the work of the Mechanism.[12]

In addition, special consideration is given to LDCs in the mandate of the TEC, one of the Mechanism's two main bodies, in relation to its role in "recommending guidance on policies and programme priorities related to technology development and transfer".[13] This might stem from a feeling that negotiations at one point were paying more attention to the needs of middle-income countries and mitigation technologies and not sufficiently to LDCs and adaptation technologies.

1.2.4 Deadlock on intellectual property rights

The issue of IPRs was one of the most divisive in the technology negotiations, if not the most divisive. Up to Cancun, developing countries had pressed for the consideration of IPRs as one of the possible barriers to technology transfer. However, developed countries opposed such a view, given the essential role they consider that IPR protection plays in providing incentives for innovation in clean technologies. A 'polarized' debate followed, in which there was little chance for meaningful discussion based on evidence rather than rhetoric.[14] As a result, all the language on IPRs remained bracketed during negotiations and, ultimately, there was no reference to IPRs in the final text of the Cancun Agreements.

After a meeting of BASIC countries – Brazil, South Africa, India and China – in New Delhi in February 2011 to assess the outcome of the Cancun meeting, the Indian Minister of Environment indicated that "there were a number of issues in the Bali Road Map that had not been presented in the Cancun agreements, in particular the issue of equity, intellectual property rights and trade which are all very important to BASIC countries". "We will make every effort to bring these issues back to the mainstream discussion", he added.[15]

8 ICTSD (2010).

9 Chu (2010).

10 Obama (2011).

11 Paragraph 114, Cancun Agreements, UNFCCC (2010a).

12 Ibid., e.g. paragraph 116.

13 Ibid., paragraph 121(c).

14 For empirical evidence in this area, see UNEP, EPO & ICTSD (2010).

15 Xinhua News (2011).

2. Mandate, Structure and Functions of the Technology Mechanism

2.1 Mandate

Provisions relating to the establishment of the Technology Mechanism are contained in Section IV B of Decision 1/CP.16 of COP 16 on the Outcome of the work of the Ad Hoc Working Group on long-term Cooperative Action (AWG LCA) (hereinafter the "Cancun Agreements").[16]

According to paragraph 117, the COP decides to establish a Technology Mechanism to "facilitate the implementation of actions for achieving the objective referred to in paragraphs 113-115". In this regard, the "objective of enhanced action on technology development and transfer, is to support action on mitigation and adaptation in order to achieve the full implementation of the Convention".[17] The COP also decides "to accelerate action consistent with international obligations, at different stages of the technology cycle, including research and development, demonstration, deployment, diffusion and transfer of technology in support of action on mitigation and adaptation".[18]

It is interesting to note that the Technology Mechanism is ultimately placed "under the guidance of the COP" (paragraph 117). This had been one of the sticking points in negotiations after Copenhagen, as developing countries favoured having the Mechanism under the 'authority' of the COP in order to give the COP a stronger oversight role.

In general, the wording of the Technology Mechanism's mandate appears rather intricate and convoluted compared to previous formulations in the negotiations. It aims now primarily to "facilitate the implementation of actions" and "to accelerate action consistent with international obligations" at different stages of the technology cycle. This stands in contrast to the more direct and assertive wording in previous drafts – as well as in the Copenhagen Accord – whereby the Mechanism aimed simply "*to accelerate technology development and transfer* in support of action on adaptation and mitigation" (emphasis added).

2.2 Priority Areas

After specifying the mandate of the Technology Mechanism, the COP's decision lists a number of 'priority areas' to be considered under the Convention (See Box 1 below).

Of these seven priority areas, three appear to be of particular significance for the future work of the Technology Mechanism.

The first priority area – the development of endogenous capacities including cooperative research, development and demonstration programmes – has been recurrently mentioned in previous UNFCCC COP decisions.[19] The key question remains how to foster cooperative research and development (R&D) programmes in which developing countries can participate more effectively. In this regard, the Expert Group on Technology Transfer (EGTT) has recently elaborated a number of options to facilitate collaborative research and development based on a review of existing collaborative technology research and development activities, which will require further consideration.[20]

Box 1: Priority Areas for Enhanced Action on Technology Development and Transfer

(a) Development and enhancement of endogenous capacities and technologies of developing country Parties, including cooperative research, development and demonstration programmes;
(b) Deployment and diffusion of environmentally sound technologies and know-how in developing country Parties;
(c) Increased public and private investment in technology development, deployment, diffusion and transfer;
(d) Deployment of soft and hard technologies for the implementation of adaptation and mitigation actions;
(e) Improved climate change observation systems and related information management;
(f) Strengthening of national systems of innovation and technology innovation centres;
(g) Development and implementation of national technology plans for mitigation and adaptation;

Source: Paragraph 120, Cancun Agreements, UNFCCC (2010a).

16 UNFCCC (2010a).

17 Ibid., paragraph 113.

18 Ibid., paragraph 115.

19 For instance, in 2001, the Marrakesh Accords stated in Decision 4/CP.7, paragraph 14(c), that: "All Parties are urged to promote joint research and development programmes, as appropriate, both bilaterally and multilaterally" (UNFCCC, 2001).

20 EGTT (2010).

The priority area relating to "strengthening of national systems of innovation and technology innovation centres" is of importance, as this may be the first time that the concept of 'innovation' has been given such a prominent standing in UNFCCC decisions on technology transfer. In recent years, a number of international fora have increasingly been turning their attention to harnessing innovation in order to achieve economic prosperity and address global challenges. Examples include the OECD Innovation Strategy (2010)[21] and the WHO Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property (2008).[22] The establishment and strengthening of national systems of innovation has often been at the heart of these discussions.[23] In the course of the climate change negotiations, there has been an increasing emphasis on the need to better integrate this dimension into the emerging climate-related technology transfer architecture.[24] However, it should be noted that this reference to the 'strengthening of national systems of innovation' ultimately stops short of mentioning that this should occur specifically *in* developing countries.

The "development and implementation of national technology plans for mitigation and adaptation" reflects the keenness of parties to move beyond technology needs assessments. These had been an important element of the technology work programme under the UNFCCC for many years. However, there was a feeling, particularly among developing countries, that they should not be an end in themselves and that a more dynamic approach, embodied in national technology plans, should be promoted to complement and build upon them.

Interestingly, the role of publicly funded ESTs is not specifically highlighted on its own among the priority areas mentioned above (nor among the functions of the Technology Mechanism's main components). It is important to recall, in this regard, that this issue has traditionally been the subject of attention in climate change discussions on technology transfer going as far back as Agenda 21 (1992), which stipulated that: "Governments and international organizations should promote the formulation of policies and programmes for the effective transfer of ESTs that are publicly owned or in the public domain".

Such special attention is based on the premise that the share of publicly funded R&D is particularly significant in climate change technologies, as the initial viability of ESTs tends to be low. Proposals have been made during the course of the technology transfer negotiations to harness the potential of publicly funded ESTs through partnerships between developed and developing countries, as well as by looking into possibilities around pooling, sharing and exchanging publicly funded R&D.[25]

Yet the absence of any specific recognition of the role of publicly funded technologies in technology transfer is revealing of the relative success of industrialized countries in advancing the argument that technology is solely in private hands, which tends to evade altogether the important contribution of publicly funded technologies.

2.3 Structure

The Technology Mechanism consists of two components: the Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN). Both should "facilitate the effective implementation of the Technology Mechanism, under the guidance of the Conference of the Parties". Figure 1 provides an overview of the Mechanism's structure and of the functions of its main components. These functions will be examined in more detail in the following sub-sections.

21 OECD (2010).

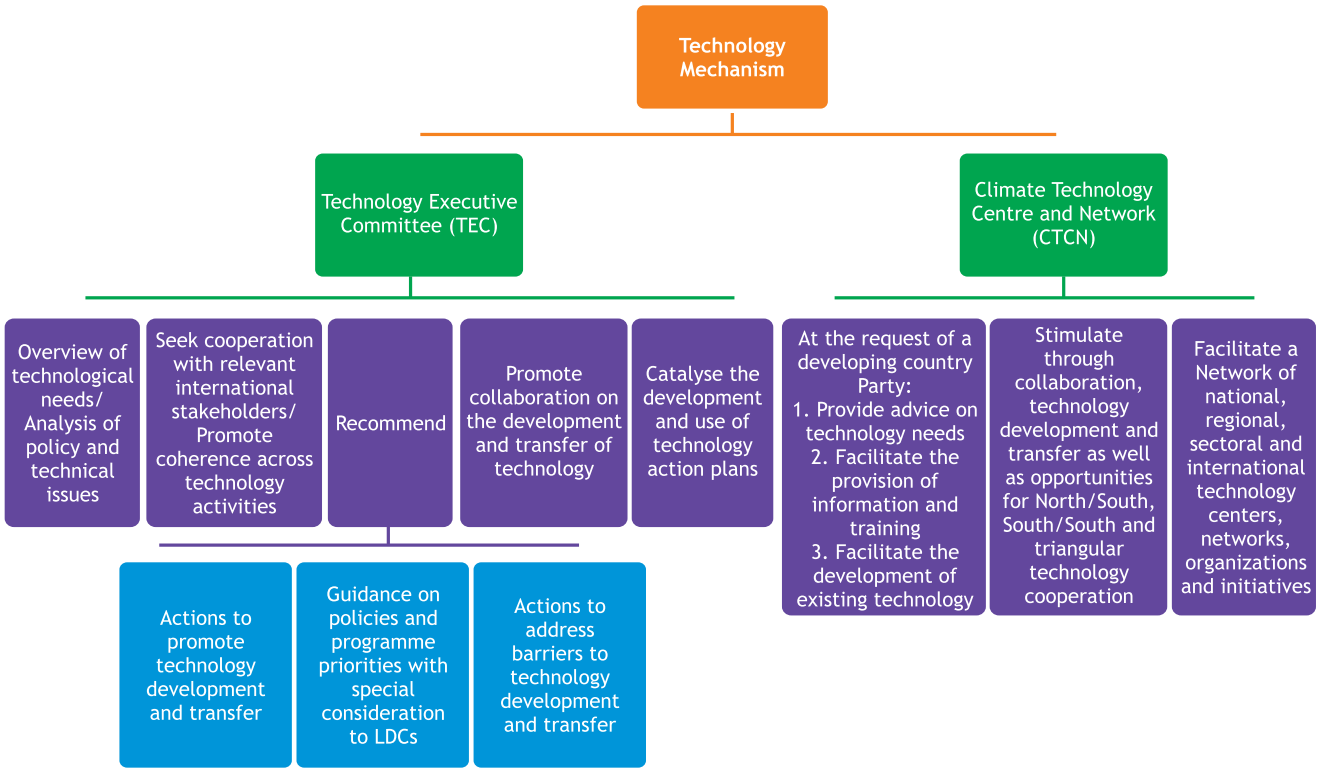
22 WHO (2008).

23 Kraemer-Mbula & Maharajh (2010). See also the Science, Technology and Innovation Policy Reviews (STIPs) conducted by UNCTAD (n.d.).

24 Cannady (2009).

25 Chung (2008).

Figure 1. Structure of the Technology Mechanism



Source: ICTSD

2.2.1 The Technology Executive Committee

The mandate and the composition of the TEC are contained in Annex IV of the Cancun AWG LCA decision (attached as an Annex). According to it, the TEC shall be comprised of twenty experts, elected by the COP, serving in their personal capacity and nominated by Parties. In order to achieve a fair and balanced representation, it is specified that nine should come from Annex I countries, three from each of the three regions of the parties not included in Annex I (Africa; Asia and the Pacific; and Latin America and the Caribbean), one member from a Small Island Developing State and one from an LDC.

The decisions of the TEC will be taken by consensus. In terms of its *modus operandi*, the TEC "should draw upon *outside expertise*, including the UNFCCC roster of experts and the Climate Technology Centre and Network, to provide advice". The TEC "should seek input from intergovernmental and international organizations and the private sector and *may* seek input from civil society in undertaking its work". Its meetings "shall be *open* to attendance by accredited observer organizations, except where otherwise decided by the TEC" (emphasis added).

The TEC's ability to draw on 'outside expertise' is certainly a positive feature, as this ensures that it can avail itself of the highest expertise in carrying out its functions. Seeking input from the private sector is logical in light of its important role in developing and diffusing technologies.

Indeed, the effectiveness of the Technology Mechanism will be contingent on the involvement of a wide range of stakeholders, in particular the private sector. While there might be some scepticism among businesses regarding the effectiveness of international arrangements in encouraging technology diffusion, meaningful contribution to the Mechanism's activities could provide a valuable opportunity for the private sector to show its commitment to combating climate change through technology diffusion beyond a 'business as usual approach'.

The TEC's functions are listed in Box 2.

Box 2: Functions of the Technology Executive Committee

(a) Provide an overview of technological needs and analysis of policy and technical issues related to the development and transfer of technology for mitigation and adaptation;
(b) Consider and recommend actions to promote technology development and transfer in order to accelerate action on mitigation and adaptation;
(c) Recommend guidance on policies and programme priorities related to technology development and transfer with special consideration given to the least developed country Parties;
(d) Promote and facilitate collaboration on the development and transfer of technology for mitigation and adaptation between governments, the private sector, non-profit organizations and academic and research communities;
(e) Recommend actions to address the barriers to technology development and transfer in order to enable enhanced action on mitigation and adaptation;
(f) Seek cooperation with relevant international technology initiatives, stakeholders and organizations, promote coherence and cooperation across technology activities, including activities under and outside of the Convention;
(g) Catalyse the development and use of technology road maps or action plans at international, regional and national levels through cooperation between relevant stakeholders, particularly governments and relevant organizations or bodies, including the development of best practice guidelines as facilitative tools for action on mitigation and adaptation;

Source: Paragraph 121, Cancun Agreements, UNFCCC (2010a).

Of the TEC's seven functions, three pertain to 'making recommendations'. Among these three, the most general one concerns recommending "actions to promote technology development and transfer in order to accelerate action on mitigation and adaptation" (function (b)). Basically almost anything can fall under this heading.

The TEC can also recommend "guidance on policies and programme priorities related to technology development and transfer with special consideration given to [LDCs]" (function (c)). In addition, it can "recommend actions to address the barriers to technology development and transfer in order to enable enhanced action on mitigation and adaptation" (function (e)).

Apart from making recommendations, the TEC can provide an "overview of technological needs" and "analysis of policy and technical issues" (function (a)) and "catalyse the development and use of technology road maps or action plans […] including the development of best practice guidelines as facilitative tools for action on mitigation and adaptation" (function (g)).

A number of elements remain unclear from this wording: is the "overview of technological needs" by the TEC at the national, regional or international level? How can the TEC concretely "catalyse" the technology road maps or action plans?

On the whole, the wording of all these functions is quite general and gives quite a large latitude and discretionary power to the TEC to define the scope of its responsibilities, the range of its activities and the manner in which it will carry them out. For instance, the TEC could itself make a determination as to what constitute "barriers" to technology development and transfer.

Overall, the TEC's primary focus appears to be to service the UNFCCC and its Parties. Its main functions, particularly in making recommendations and providing an overview of technological needs, are close to those of a policy 'oversight' body, as it would have been originally intended to be.

2.2.2 The Climate Technology Centre and Network

The objective of the Climate Technology Centre (CTC) is to "facilitate a Network of national, regional, sectoral and international technology networks, organizations and initiatives with a view to engaging the participants of the Network in a number of functions". These functions are listed in Box 3.

Box 3: Functions of the Climate Technology Network

(a) At the request of a developing country Party:
  (i) Provide advice and support related to the identification of technology needs and the implementation of environmentally sound technologies, practices and processes;
  (ii) Facilitate the provision of information, training and support for programmes to build or strengthen developing country capacity to identify technology options, make technology choices and operate, maintain and adapt technology;
  (iii) Facilitate prompt action on the deployment of existing technology in developing country Parties based on identified needs;

(b) Stimulate and encourage, through collaboration with the private sector, public institutions, academia and research institutions, the development and transfer of existing and emerging environmentally sound technologies, as well as opportunities for North/South, South/South and triangular technology cooperation;

(c) Facilitate a Network of national, regional, sectoral and international technology centres, networks, organizations and initiatives with a view to:
  (i) Enhancing cooperation with national, regional and international technology centres and relevant national institutions;
  (ii) Facilitating international partnerships among public and private stakeholders to accelerate the innovation and diffusion of environmentally sound technologies to developing country Parties;
  (iii) Providing, on request by a developing country Party, in-country technical assistance and training to support identified technology actions in developing country Parties;
  (iv) Stimulating the establishment of twinning centre arrangements to promote North/South, South/South and triangular partnerships with a view to encouraging cooperative research and development;
  (v) Identify, disseminate and assist with developing analytical tools, policies and best practices for country-driven planning to support the dissemination of environmentally sound technologies;

(d) Performing other such activities as may be necessary to carry out its functions;

Source: Paragraph 123, Cancun Agreements, UNFCCC (2010a).

Of the CTC's three main functions, the most novel and challenging one is no doubt to "facilitate a Network of national, regional, sectoral and international technology centres, networks, organization and initiatives".[26]

The negotiating text for the UNFCCC Tianjin meeting, in October 2010, just prior to Cancun, stated that the CTC would "*establish* and facilitate" a Climate Technology Network (emphasis added).[27] The elimination of the term 'establish' from the final Cancun Agreements is significant. The creation or establishment of a network of regional innovation centres with the aim of accelerating the diffusion of climate-friendly technologies was considered during the pre-Cancun negotiations as one of the concrete new measures that the Technology Mechanism would bring about.[28] Actually, much of the value added of the Technology Mechanism was seen to lie in the creation of a network of regional innovation centres.

In addition, it should also be noted, that there is ultimately no explicit reference in the Cancun final decision to supporting clean energy innovation strategies and efforts *in or by* developing countries *per se*, among the functions of the TEC or the CTCN. It is mentioned that the Climate Technology Network is to facilitate "international partnerships among public and private stakeholders to *accelerate the innovation* and diffusion of environmentally sound technologies *to* developing country Parties" (emphasis added). However, fostering partnerships to accelerate innovation and diffusion of ESTs *to* developing countries doesn't necessarily amount to supporting clean energy innovation *in* or *by* these countries, particularly in the absence of any reference to the creation of national or regional technology innovation centres.

Thus the fact that the CTC is now confined to only *facilitate* a "network of national, regional, sectoral and international technology centres" marks a scaling down of ambition compared to the original intent. This change might stem from concerns about the cost implications associated with the creation of new entities and a

26 An example of a network of international technology and research centres is the Consultative Group on International Agricultural Research (CGIAR). See Correa (2009).

27 UNFCCC (2010b).

28 See for instance draft decision D.-/CP.15 on Enhanced action on technology development and transfer, Paragraphs 6 (m) and 15 (g), (UNFCCC, 2010c).

desire to take greater advantage of existing institutions and centres.

The term 'facilitate' is also not devoid of ambiguity as to what it exactly entails. The Oxford English Dictionary defines 'facilitate' as to 'make easy or easier'.[29] The 'facilitation' function could mean that the Network would essentially act as a *coordinator* and a *catalyst* between a wide range of existing actors and stakeholders in carrying out the functions listed under paragraph (c) of its mandate. In any case, a number of questions remain as to how the facilitation of the Network would take place concretely, where the CTC would be hosted and which entities could become members of the Network. Some useful exploratory work has been done in this area which could be built upon.[30]

Interestingly, a reference to South-South cooperation is made in two instances in the Network's mandate, reflecting the importance of the technological capabilities acquired by emerging countries such as China, India and Brazil from which other developing countries and LDCs can benefit.

Apart from the facilitation of the abovementioned Network, the other important function of the Network is to provide advice and support to developing countries based on their request to: (i) identify technology needs; (ii) facilitate the provision of information, training and support; and (iii) facilitate prompt action on the deployment of existing technology in developing country parties based on identified needs.

In this regard, the CTCN can play a valuable role in providing neutral and impartial advice to developing countries about available clean energy technologies, which of them would be the most suitable for their needs and circumstances, and how to ensure their prompt deployment. This is of particular importance in view of the fact that a range of commercial interests are promoting their respective technologies (wind, solar, nuclear, etc.) to many developing countries which often do not have sufficient expertise to make informed choices about which technology is best suited to their needs.

In this context, the provision by CTCN of information on technologies appears to be another key element in enabling developing countries to identify technology options and make appropriate technology choices. This information should include technologies protected by IPRs as well as those in the public domain. In recent years, a number of platforms and research tools have been developed to provide easier access to patent information relating to clean energy technologies. The new patent classification developed by the European Patent Office (EPO) in the context of a joint project with UNEP and ICTSD, which provides simplified and free access to all patent documents related to clean energy technologies worldwide, is a prime example.

Overall, the CTCN's primary focus is to provide services to developing countries. However, there are also some possible overlaps between some of the functions of the TEC and of the CTCN in relation to promoting technology collaboration with a range of stakeholders. For instance, the TEC can "promote and facilitate collaboration on the development and transfer of technology for mitigation and adaptation between governments, the private sector, non-profit organizations and academic and research communities" (function (d)) and similarly the CTCN can "promote and facilitate collaboration on the development and transfer of technology for mitigation and adaptation between governments, the private sector, non-profit organizations and academic and research communities" (function (b)). For this reason, the reference to the need for coherence and synergy between the two bodies is important (paragraph 127 of the Cancun Agreements).

3. Next Steps and Challenges Ahead

There are a number of steps to be taken and challenges to address in order to make the Mechanism operational and effective.

3.1 Next Steps

According to the Cancun decision, the Technology Mechanism should be fully operational in 2012. The TEC should convene its first meeting "as soon as practicable" following the election of its members and elaborate its modalities and procedures for consideration by the COP at its 17th session in Durban in December 2011.

The Cancun decision also establishes a work programme for the AWG LCA, in 2011, on technology development and transfer. The work programme calls for continued dialogue among parties on a number of matters with a view to the COP taking a decision in Durban. These matters include:

(a) The relationship between the TEC and the CTCN, and their reporting lines;

(b) The governance structure and terms of reference for the CTCN and how the Climate Technology Centre will relate to the Network;

29 See the Oxford English Dictionary, available online at: http://oxforddictionaries.com/.

30 UNEP, NREL & ECN (2010).

(c) The procedure for calls for proposals and the criteria to be used to evaluate and select the host of the CTCN;

(d) The potential links between the Technology Mechanism and the financial mechanism;

(e) Consideration of additional functions for the TEC and the CTCN.

The Cancun decision also envisages the convening of an expert workshop in 2011, in conjunction with one of the AWG LCA sessions, to examine these matters, drawing upon the preliminary work undertaken by the EGTT. Discussions on point (b) above should draw on the results of this workshop,which has been scheduled for 4-5 April 2011 in Bangkok.

3.2 Financing

The Mechanism needs to be endowed with sufficient resources if it is to play any meaningful role and make a 'real' difference. In this regard, neither the quantity of resources it will be endowed with, nor its possible links with the Convention's financial mechanisms, such as the new Green Climate Fund, are clear.

As mentioned above, the potential links between the Technology Mechanism and the financial mechanism is one of the issues to be discussed in the context of the 2011 work programme of the AWG LCA.

In any case, movement on this front seems closely associated with progress on climate finance more generally, including the work of the Transitional Committee on the design of a Green Climate Fund.

3.3 Pending Institutional Issues

The relationship between the TEC and CTCN remains undefined and should be determined by COP 17 in Durban.

It was initially envisaged that the TEC would oversee the work of the CTCN. The negotiating text considered at the Tianjin meeting prior to the Cancun conference stipulated that the TEC would "provide guidance to the Climate Technology Centre and Network with a view to aligning the activities of the Climate Technology Centre and Network with country-driven actions".[31]

Ultimately, this wording was not retained in the final text of the decision, as it seems there were apprehensions that the TEC could become a 'politicized' body that intervenes in technology matters.

The reasons for such apprehensions are not clear. As seen above, the nature of the TEC's functions makes it a logical oversight body for the more technical CTCN. Furthermore, the fact that TEC decisions will be taken by consensus makes it difficult for any single group of members to direct the work of the TEC only according to its own interests or views.

In the absence of such an oversight function by the TEC over the CTCN, the two bodies would report separately to the Convention's subsidiary bodies on their respective activities and the performance of their respective functions. This might result in some duplication, despite efforts to avoid it and the requirement that they promote coherence and synergy between their areas of work.

In any case, the matter should be dealt with swiftly by the next climate change conference in Durban (2011) so as not hamper the future work of the Mechanism.

4. Conclusion

Overall, the new Technology Mechanism potentially represents a step to move beyond the 'conventional' approach to technology transfer under the climate regime – based essentially on capacity building and technology needs assessments – to a more 'dynamic' one geared towards fostering public-private partnerships; promoting innovation; catalysing the use of technology road maps or action plans; mobilizing national, regional and international technology centres; and facilitating joint R&D activities. The task facing the Technology Mechanism is arduous. Governments and other stakeholders, especially the private sector, have an important role in ensuring its success.

In this context, discussions on the road to COP 17 in Durban (December, 2011) will play a critical role in settling outstanding institutional matters relating to the design of the Technology Mechanism and in elaborating further the exact manner in which its main bodies will operate. Concomitant deliberations on finance will also be essential in ensuring the Mechanism's future viability. The success of these discussions will put the Mechanism on solid ground in order for it to be operational in 2012, and more importantly to become an integrated and coherent entity which is both flexible in its design and operations and effective in carrying out its tasks.

31 UNFCCC (2010b).

References

Abdel Latif, A. (2010). "Technology Transfer and Intellectual Property: A Post-Copenhagen Assessment". *Bridges Monthly*, Volume 14, Number 1, February 2010. Geneva: International Centre for Trade and Sustainable Development. Available online at: http://www.ictsd.org/.

Cannady, C. (2009). *Access to Climate Change Technology by Developing Countries: A Practical Strategy*. Issue Paper No. 25. ICTSD Programme on Intellectual Property Rights and Sustainable Development Series. Geneva: International Centre for Trade and Sustainable Development. Available online at: http://www.ictsd.org/.

Chu, S. (2010). "Is the Energy Race our new "Sputnik" moment?" National Press Club, Washington D.C., 29 November 2010. Available online at: http://www.energy.gov/news/documents/Chu_NationalPressClub112910.pdf.

Chung, R. K. (2008). *Transfer of Publicly-funded Technologies*. Presentation at Workshop on cooperation on research and development of current, new and innovative technology, including win-win solutions, 6 December 2008, COP 14, Poznan. Available online at: http://unfccc.int/files/kyoto_protocol/application/pdf/korealcaresearch.pdf.

Correa, C. (2009). *Fostering the Development and Diffusion of Technologies for Climate Change: Lessons from the CGIAR Model*. Policy Brief No. 6. ICTSD Programme on IPRs and Sustainable Development. Geneva: International Centre for Trade and Sustainable Development. Available online at: http://www.ictsd.org/.

EGTT. (2010). *Report on Options to Facilitate Collaborative Technology Research and Development*. Note by the Chair of the Expert Group on Technology Transfer. United Nations Framework Convention on Climate Change (FCCC/SBSTA/2010/INF.11). Available online at: http://unfccc.int/resource/docs/2010/sbsta/eng/inf11.pdf.

G77 & China. (2008). *Proposal by the G77 and China for a Technology Mechanism under the UNFCCC*. Available online at: http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/technology_proposal_g77_8.pdf.

ICTSD. (2010). "US Steelworkers Lash out at Chinese Clean Energy Subsidies". Bridges Weekly, 15 September 2010. Geneva: International Centre for Trade and Sustainable Development. Available online at: http://ictsd.org/i/news/bridgesweekly/84804/.

Kraemer-Mbula, E. & Maharajh, R. (2010). "Innovation Strategies in Developing Countries". In E. Kraemer-Mbula & W. Wamae *(Eds.), Innovation and the Development Agenda*. Paris: OECD Publishing.

OECD. (2010). *The OECD Innovation Strategy: Getting a Head Start on Tomorrow*. Organisation for Economic Cooperation and Development. Paris: OECD Publishing.

Obama, B. (2011). "Remarks by the President in State of Union Address". The White House, Office of the Press Secretary. 25 January 2011. Available online at: http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address.

Seligsohn, D., Weischer, L., Tomlinson, S. & Zorlu, P. (2009). *Key Functions for a UNFCCC Technology Institutional Structure: Identifying Convergence in Country Submissions*. World Resources Institute. Available online at: http://www.wri.org/publication/key-functions-for-a-unfccc-technology-institutional-structure.

UNCTAD. (n.d.). *Science, Technology and Innovation Policy Reviews* (STIPs). United Nations Conference on Trade and Development. Available online at: http://www.unctad.org/templates/Page.asp?intItemID=3434&lang=1.

UNEP, EPO & ICTSD. (2010). *Patents and Clean Energy, Bridging the gap between Evidence and Policy*. United Nations Environment Programme, European Patent Organisation and International Centre for Trade and Sustainable Development. Available online at: http://ictsd.org/i/publications/85887/.

UNEP, NREL & ECN (2010). *An Exploration of Options and Functions of Climate Technology Centres and Networks*. UNEP Discussion paper, November 2010. Available online at: http://www.uneptie.org/energy/pdf/CTCN_UNEP-20101118_final.pdf.

UNFCCC. (2010a). *Decisions adopted by the Conference of the Parties on the Outcome of the work of the Ad Hoc Working Group on long-term Cooperative Action*. United Nations Framework Convention on Climate Change (FCCC/CP/2010/7/Add.1). Available online at: http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2.

UNFCCC. (2010b). *Negotiating Text of the Ad Hoc Working Group on long-term Cooperative Action*. United Nations Framework Convention on Climate Change (FCCC/AWGLCA/2010/14). Available online at: http://unfccc.int/resource/docs/2010/awglca12/eng/14.pdf.

UNFCCC. (2010c) *Report of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention on its eighth session, held in Copenhagen from 7 to 15 December 2009*. United Nations Framework Convention on Climate Change (FCCC/AWGLCA/2009/17). Available online at: http://unfccc.int/documentation/documents/advanced_search/items/3594.php?rec=j&priref=600005684

UNFCCC. (2009). *Copenhagen Accord*. United Nations Framework Convention on Climate Change (FCCC/CP/2009/L.7). Available online at: http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf.

UNFCCC. (2007). *Bali Action Plan*. United Nations Framework Convention on Climate Change (FCCC/CP/2007/6/Add.1). Available online at: http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf.

UNFCCC. (2001). *Report of the Conference of the Parties on its Seventh Session: Action Taken by the Conference of the Parties*. United Nations Framework Convention on Climate Change (FCCC/CP/2001/13/Add.1). Available online at: http://unfccc.int/resource/docs/cop7/13a01.pdf.

WBCSD. (2010). *Enabling frameworks for technology diffusion: A business perspective. World Business Council for Sustainable Development*. Available online at: http://www.wbcsd.org/.

WHO. (2008). *Global strategy and plan of action on public health, innovation and intellectual property*. Sixty-First World Health Assembly (WHA61.21). World Health Organization. Available online at: http://apps.who.int/gb/.

Xinhua News. (2011). "India holds post-Cancun BASIC ministerial meeting on Climate Change". 28 February 2011. Available online at: http://new s.xinhuanet.com/.

Annex -Decision 1/CP.16

The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action Under the Convention

IV. B. Technology development and transfer

Recalling the commitments under the Convention, in particular Article 4, paragraphs 1, 3, 5, 7, 8 and 9,

Confirming the importance of promoting and enhancing national and international cooperative action on the development and transfer of environmentally sound technologies to developing country Parties to support action on mitigation and adaptation now, up to and beyond 2012, in order to achieve the ultimate objective of the Convention,

Recognizing that an early and rapid reduction in emissions and the urgent need to adapt to the adverse impacts of climate change require large-scale diffusion and transfer of, or access to, environmentally sound technologies,

Stressing the need for effective mechanisms, enhanced means, appropriate enabling environments and the removal of obstacles to the scaling up of the development and transfer of technology to developing country Parties:

113. *Decides* that the objective of enhanced action on technology development and transfer is to support action on mitigation and adaptation in order to achieve the full implementation of the Convention;

114. *Also decides* that, in pursuit of this objective, technology needs must be nationally determined, based on national circumstances and priorities;

115. *Further decides* to accelerate action consistent with international obligations, at different stages of the technology cycle, including research and development, demonstration, deployment, diffusion and transfer of technology (hereinafter referred in this decision as technology development and transfer) in support of action on mitigation and adaptation;

116. *Encourages* Parties, in the context of Article 4, paragraphs 1(c) and 5, of the Convention and consistent with their respective capabilities and national circumstances and priorities, to undertake domestic actions identified through country-driven approaches, to engage in bilateral and multilateral cooperative activities on technology development and transfer and to increase private and public research, development and demonstration in relation to technologies for mitigation and adaptation.

117. *Decides* to establish a Technology Mechanism to facilitate the implementation of actions for achieving the objective referred to in paragraphs 113–115 above, under the guidance of and accountable to the Conference of the Parties, which will consist of the following components:

(a) A Technology Executive Committee, to undertake the functions contained in paragraph 121 below;

(b) A Climate Technology Centre and Network, to undertake the functions contained in paragraph 123 below;

118. *Also decides* that the Technology Executive Committee and the Climate Technology Centre and Network, consistent with their respective functions, should facilitate the effective implementation of the Technology Mechanism, under the guidance of the Conference of the Parties;

119. *Further decides* that the Technology Executive Committee shall further implement the framework for meaningful and effective actions to enhance the implementation of Article 4, paragraph 5, of the Convention adopted by decision 4/CP.7 and enhanced by decision 3/CP.13;

120. *Decides* that priority areas that could be considered under the Convention may include:

(a) Development and enhancement of the endogenous capacities and technologies of developing country Parties, including cooperative research, development and demonstration programmes;

(b) Deployment and diffusion of environmentally sound technologies and knowhow in developing country Parties;

(c) Increased public and private investment in technology development, deployment, diffusion and transfer;

(d) Deployment of soft and hard technologies for the implementation of adaptation and mitigation actions;

(e) Improved climate change observation systems and related information management;

(f) Strengthening of national systems of innovation and technology innovation centres;

(g) Development and implementation of national technology plans for mitigation and adaptation.

121. *Also decides* that the functions of the Technology Executive Committee shall be to:

(a) Provide an overview of technological needs and analysis of policy and technical issues related to the development and transfer of technologies for mitigation and adaptation;

(b) Consider and recommend actions to promote technology development and transfer, in order to accelerate action on mitigation and adaptation;

(c) Recommend guidance on policies and programme priorities related to technology development and transfer with special consideration given to the least developed country Parties;

(d) Promote and facilitate collaboration on the development and transfer of technologies for mitigation and adaptation between governments, the private sector, nonprofit organizations and academic and research communities;

(e) Recommend actions to address the barriers to technology development and transfer in order to enable enhanced action on mitigation and adaptation;

(f) Seek cooperation with relevant international technology initiatives, stakeholders and organizations, and promote coherence and cooperation across technology activities, including activities under and outside of the Convention;

(g) Catalyse the development and use of technology road maps or action plans at the international, regional and national levels through cooperation between relevant stakeholders, particularly governments and relevant organizations or bodies, including the development of best practice guidelines as facilitative tools for action on mitigation and adaptation.

122. *Further decides* that the Technology Executive Committee shall have the mandate and composition as contained in appendix IV to this decision;

123. *Decides* that the Climate Technology Centre shall facilitate a network of national, regional, sectoral and international technology networks, organizations and initiatives with a view to engaging the participants of the Network effectively in the following functions:

(a) At the request of a developing country Party:

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

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

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

(b) Stimulating and encouraging, through collaboration with the private sector, public institutions, academia and research institutions, the development and transfer of existing and emerging environmentally sound technologies, as well as opportunities for North–South, South–South and triangular technology cooperation;

(c) Facilitating a network of national, regional, sectoral and international technology centres, networks, organization and initiatives with a view to:

(i) Enhancing cooperation with national, regional and international technology centres and relevant national institutions;

(ii) Facilitating international partnerships among public and private stakeholders to accelerate the innovation and diffusion of environmentally sound technologies to developing country Parties;

(iii) Providing, at the request of a developing country Party, in-country technical assistance and training to support identified technology actions in developing country Parties;

(iv) Stimulating the establishment of twinning centre arrangements to promote North–South, South–South and triangular partnerships, with a view to encouraging cooperative research and development;

(v) Identifying, disseminating and assisting with developing analytical tools, policies and best practices for country-driven planning to support the dissemination of environmentally sound technologies.

(d) Performing other such activities as may be necessary to carry out its functions.

124. *Also decides* to terminate the mandate of the Expert Group on Technology Transfer at the conclusion of the sixteenth session of the Conference of the Parties;

125. *Further decides* that the Technology Executive Committee shall convene its first meeting as soon as practicable following the election of its members and shall elaborate its modalities and procedures taking into account the need to achieve coherence and maintain interactions with other relevant institutional arrangements under and outside of the Convention, for consideration by the Conference of the Parties at its seventeenth session;

126. *Decides* that the Technology Executive Committee and the Climate Technology Centre and Network shall report, on an interim basis and without prejudice to the relationship between the Technology Executive Committee and the Climate Technology Centre and Network as referred to in paragraph 128 (a) below to the Conference of the Parties, through the subsidiary bodies, on their respective activities and the performance of their respective functions;

127. *Also decides* that the Climate Technology Centre and Network and the Technology Executive Committee shall relate so as to promote coherence and synergy;

Work programme for the Ad Hoc Working Group on Long-term Cooperative Action under the Convention in 2011 on technology development and transfer

128. *Underlines* the importance of continued dialogue among Parties in 2011 through the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, including on the following matters, with a view to the Conference of the Parties taking a decision at its seventeenth session, in order to make the Technology Mechanism fully operational in 2012:

(a) The relationship between the Technology Executive Committee and the Climate Technology Centre and Network, and their reporting lines;

(b) The governance structure of and terms of reference for the Climate Technology Centre and Network and how the Climate Technology Centre will relate to the Network, drawing upon the results of the workshop referred to in paragraph 129 below;

(c) The procedure for calls for proposals and the criteria to be used to evaluate and select the host of the Climate Technology Centre and Network;

(d) The potential links between the Technology Mechanism and the financial mechanism;

(e) Consideration of additional functions for the Technology Executive Committee and the Climate Technology Centre and Network.

129. *Requests* the Ad Hoc Working Group on Long-term Cooperative Action under the Convention to convene an expert workshop, in conjunction with one of its sessions in 2011, on the matters contained in paragraph 128 above, drawing upon the preliminary work undertaken by the Expert Group on Technology Transfer, and to report on the results of this workshop at that session.

Founded in 1996, the International Centre for Trade and Sustainable Development (ICTSD) is an independent non-profit and nongovernmental organization based in Geneva. By empowering stakeholders in trade policy through information, networking, dialogue, well-targeted research and capacity-building, ICTSD aims to influence the international trade system so that it advances the goal of sustainable development.

This paper was produced under The ICTSD Global Platform on Climate Change, Trade Policies and Sustainable Energy with the generous support of the Department for International Development (U.K.); the Swedish International Development Cooperation Agency (SIDA); the Ministry of Foreign Affairs of Denmark, Danida; the Ministry of Foreign Affairs of Finland; the Ministry of Foreign Affairs of Norway; AusAID; Oxfam Novib; and ICTSD's thematic and project supporters.

Information Note by Ahmed Abdel Latif, ICTSD. The author would like to thank Ingrid Jegou, Joachim Monkelbaan, Pedro Roffe and Nico Tyabji for their comments.

The views expressed in this publication are those of the author and do not necessarily reflect the views of ICTSD or the funding institutions. ICTSD welcomes feedback on this document. These can be forwarded to Ahmed Abdel Latif (aabdellatif@ictsd.ch).

ISSN 1684 9825