

Note

Technology Mechanism After Marrakesh Enhancing Climate Technology Development and Transfer to Developing Countries

By Iacopo Monterosa

Summary

This note will focus on the state of technology development & transfer in the UNFCCC framework, before and after the Paris agreement and COP22, then looking at the challenges of current technology mechanisms in place as well as presenting possible alternatives and opportunities. This paper will be concluded with some recommendations to climate negotiators going to COP23, especially developing countries and LDCs negotiators (including EAC representatives).

Introduction

Promoting sound and environmentally-friendly technologies is crucial in order to allow developing and least-developed countries to effectively transition to sustainable development practices. Technology transfer has been a relevant priority of the United Nations Convention on Climate Change (UNFCCC) since the beginning. In fact, art. 4.5 of the Convention requires developed countries to help in all possible way to finance, transfer or facilitate “access to environmentally sound technologies and know-how to other Parties [...] to implement the provisions of the convention”. In line with this, the UNFCCC has created the Technology Mechanism (TM), a tool to promote the implementation of actions for enhancing technology development and transfer to support mitigation and adaptation activities in developing countries.¹ The definition of technology transfer extends beyond the mere transfer of installations and hardware, and comprehends the development of local capabilities, institutions and other non-hardware components (as operational, manufacturing and innovation capabilities).² In 2010, the Cancun Agreements introduced important amendments to the *conventional* paradigm – an approach based on capacity building and technology needs assessments. The new arrangement was, thus, oriented to foster public-private partnerships, innovation, and promote the use of action plans to facilitate joint R&D activities. The aim of this paper is to provide an overview of the current discussions

and negotiation within the UNFCCC framework. Additionally, this seeks to explore – on the basis of the relevant literature – the likely challenges of the actual technology mechanism, as well as a way forward in the UNFCCC negotiations on technology.

Recent Advancements in Climate Negotiations

As far as structure is concerned, the Technology Mechanism is composed of the Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN).

The first is the policy branch of the TM. This body is composed of twenty experts on climate change, from both developed and developing countries and its main policy and technology-related suggestions are addressed annually to the Conference of the Parties (COP). Its mandate is to help countries to identify key policy strategies that enhance the development of climate technologies. In 2016, the TEC worked mainly in giving recommendations in the area of adaptation technologies. With regard to this, TEC’s main goals were to promote the use of South-South cooperation and *triangular* cooperation on technologies for adaptation to help countries develop their National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs).³ Another relevant area of activities was climate technology financing. TEC’s primary objective was to explore new ways of supporting climate technology related requests for technical assistance, including through the

¹ https://cdkn.org/resource/technology-mechanism-under-unfccc-ways-forward/?loclang=en_gb

² <http://voxeu.org/sites/default/files/image/FromMay2014/Climate%20change%20book%20for%20web.pdf>

³ <https://www.globalccsinstitute.com/insights/authors/MarkBonner/2016/11/30/summary-ccs-related-conversations-cop-22?author=NzU3>

strengthening of collaboration between the Global Environmental Facility (GEF) – a major fund addressing environmental issues – and the CTCN. In the past year, TEC’s experts were also very active in assessing countries’ technological needs. Recommendations were made to ensure that technology assessment is integrated within other mitigation and adaptation processes going on in the UNFCCC.⁴

The Climate Technology Centre and Network (CTCN) is the operational branch of the Technology Mechanism. This body is mainly active in elaborating technology solutions, capacity building and advice on policy, legal and regulatory frameworks to countries. In 2016, the CTCN has expanded its operations to increasingly support developing countries’ requests of technical assistance.⁵ In particular, it was highlighted that the services provided by the CTCN have contributed to NDCs and the United Nations Sustainable Development Goals (SDGs). Furthermore, the CTCN has also worked in coordination with the TEC, particularly on the topic of Technology Research, Development and Demonstrations (RD&D). Moreover, both the TEC and CTCN continued their consultations on the linkages between the Technology Mechanism and the Financial Mechanism.⁶

The COP also provides a political forum where the parties explore further areas of engagement and collaboration. As it has been highlighted,⁷ negotiations on technology was one of the

critical topics at COP22.⁸ On a general note, the Subsidiary body for Implementation’s review of the TM registered significant progress.⁹ A relevant achievement was the Subsidiary Body for Implementation (SBI) review of the TM. The parties agreed to continue with a submission process, to be evaluated again at the mid-year intersessional meeting in May 2017.

Additionally, two decisions were published at the end of the negotiations. The first one stressed the importance of continuing to enhance climate technology development and transfer through the Technology Mechanism. More specifically, it has been remarked the importance of strengthening collaboration between the GCF – an operating entity of the UNFCCC’s Financial Mechanism – and the national authorities designated for technology development and transfer. Furthermore, the parties have underlined that cooperation between the Global Environmental Facility (GEF) and the CTCN is to be encouraged as a way to support climate technology requests of technical assistance.¹⁰

The second decision,¹¹ mainly restates the importance of being able to involve more the relevant – in particular, the most affected countries, the most responsible and the most capable¹² – stakeholders as they can strengthen the linkages between the TM and the Financial Mechanism.

⁸ Ibid.

⁹ Ibid.

¹⁰ http://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8a_tm.pdf

¹¹ Ibid.

¹² http://www.mitpressjournals.org/doi/pdf/10.1162/GLEP_a_00107. The “most capable” are the major developed economies, the “most affected” are those countries that are most vulnerable to climate change and the “most responsible” are the most polluting ones.

⁴ Ibid.

⁵ Ibid.

⁶ <http://unfccc.int/resource/docs/2016/sb/eng/01.pdf>

⁷ Supra note 3

At the end of the conference, Fiji announced to be the organizer of the next COP 23, to be held exceptionally in Bonn in November 2017. The conference's main theme will concern a point that is still to be effectively addressed such as the links between climate change and development. Furthermore, efforts will be done to maintain the momentum of the Paris Agreement as well as to progress further in reducing GHG emissions.¹³

Challenges of the Current Technology Mechanism

Developing Countries' Needs to be addressed in the Upcoming Negotiations

At an international level, efforts to reduce risks related to climate change brought to the creation of the TM. This outcome was considered to be extremely relevant from the point of view of developing countries and least developed countries. Indeed, as it has been affirmed,¹⁴ these countries would not have committed themselves to submitting NDCs in the context of the Paris Agreement without an agreement on technology transfer.

Furthermore, in many cases – as for Kenya, for instance – emission reduction targets are intrinsically dependent on international support through capacity building, finance, investment technology development and

transfer.¹⁵ It is thus important to allow these countries to become full participants in the global technological market. On one hand, this would allow an easier compliance to the Paris Agreement's engagement. On the other hand, "catching-up technologically" would also enable these countries to carry out their own mitigation strategies and supply to other countries – much like China did with solar photovoltaic systems – the required installations and know-how for climate change mitigation and adaptation.¹⁶ However, in order to achieve all this, developing countries would need not only to maximise technology transfer and development. Indeed, transferring "hardware" and "software" is not enough for transitioning to a greener economy. As it has been pointed out, a certain policy capacity at the institutional level is also crucial.¹⁷

In the negotiations in 2017, it will certainly be emphasized that investments in low-carbon technologies are, indeed, essential to counter human induced climate change. Despite that, public sectors in developing countries has very limited resources to invest in R&D. Thus, the importance of a globally coordinated and endured increase in financing low-carbon technologies. The literature underlines that, although necessary, such an international agreement for low-carbon technology development will not be easy to adopt. In particular, intense discussions will concern the funding commitments and the right to have access to the discoveries deriving from the programme.¹⁸

¹³<http://newsroom.unfccc.int/cop-23-bonn/message-from-the-incoming-cop-23-president-prime-minister-frank-bainimarama-of-fiji/>

¹⁴Supra note 2

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Ibid.

Current Challenges faced by the CTCN

To this day, however, the TM has not fully lived up to its expectations. A first challenge is represented by establishing – in line with the mandate of the CTCN – a fruitful cooperation between developing and developed countries on R&D. Given the lack of resources that developing countries can invest in R&D, it is important to cooperate globally, especially in financing the development and transfer of low-carbon technologies – essential to counter human induced climate change.¹⁹

Another relevant concern that can affect CTCN support to developing countries is represented by resource availability. This body, in fact, does not have its own structural funding and it is dependent on fundraising from donors.²⁰

Current Challenges faced by the TEC

Considering the TEC, additional challenges have been raised by the literature. This body is yet to meet the hopes of developing country, in particular with regard to being a reliable source of information on technology development and transfer.²¹ This issue seems to be due to the lack of resources, as well as to its internal composition. The majority of TEC members are climate negotiators, which creates political *impasse* and reflects the stalemate that negotiations face at UNFCCC. To solve this issue, it has been suggested to select TEC members on the basis of technical expertise²²

¹⁹ Ibid.

²⁰ Ibid.

²¹ Ibid.

²² Ibid.

rather than, for example, political considerations.

Alternatives to UNFCCC for Technology Transfer and Development

Developing and least developed countries consider fair access to technology as very important for their “right to develop” and to “catch-up technologically”.²³ Therefore, the UNFCCC is not the only forum in which these issues can be negotiated.

Enhance Stakeholders’ Involvement in International Technology Cooperation

Continued and enhanced involvement of non-state actors such as firms, NGOs, international regulatory bodies – as the Montreal Protocol, the International Maritime Organization – and the multilateral and regional development banks seems crucial in order to progress further on technology transfer.²⁴ Certainly, a relevant concern is how to effectively engage with these actors, leveraging all the opportunities to positively support countries mitigation and adaptation programmes. In view of this, different strategies²⁵ have been suggested to efficiently involve them:

(i) Including *emission reduction* goals to an existing non-environmental multilateral agreement. This strategy can be useful to mobilize action towards environmentally sustainable goals.

²³ Ibid.

²⁴ Supra Note 2

²⁵ Ibid.

(ii) Transnational supply chain regulatory clubs. Following the Forest Stewardship Council's certification system and mark for sustainable timber, firms and NGOs could jointly develop performance standards and private certifying arrangements to leverage consumer demand for low GHG products.

(iii) Industry or industry-government clubs for research, development and deployment. As, for example, the International Smart Grid Action Network (an arm of the International Energy Agency), which aims to develop renewable transmission and smart grids across national borders.

(iv) Product or performance standards. A dominant firm or group of firms may adopt or promote government adoption of regulations in order to set certain environmental standards.

Technology Transfer and Development: Case Studies

The private sector, together with governments, can act as an exporter and developer of technology, as a project developer or financier.²⁶ In this regard, a research²⁷ has highlighted the prominent role that NGOs, philanthropic organisations and Public-Private Partnerships (PPPs) can play to enhance R&D collaborations.

In this light, a case study pertinent to the Eastern African Community could be a good example of fruitful public-private interactions

to enhance climate technology development.²⁸ In 2010, the United Nations Secretary General's Advisory Group and Climate Change (AGECC) created, jointly with Deutsche Bank Climate Change Advisors (DBCCA), the Global Energy Transfer Feed-in Tariffs Program (GET FiT), aiming to support East African nations to develop a climate resilient low-carbon path. The Uganda program, launched in Kampala in 2013, leveraged private investments in renewable energy generation projects and fostered the outset of 20-25 small renewable energy generation projects. The outcomes of the Uganda's pilot project, as well as other similar experiences could represent very relevant cases of how different stakeholders can align their intents and productively engage towards a sustainable and cleaner economy.

Policy measures and the removal of technical barriers to promote technology transfer are also important. In Mexico, for example, the World Bank's GEF has supported investments for the creation of wind turbines.²⁹ The fund's actions focused not only on investments' promotion but also on helping the country understand the planning and operational requirements of wind power, gaining experience with installation issues and implementing policy options that promote wind energy development. In the specific case, these policies included renewable energy portfolio standards, capital subsidies, tax incentives, tradable energy certificates, feed-in tariffs, mandatory standards and grid access guarantees. The idea is that technical barriers should be removed and adequate policy measures should be implemented in order for

²⁶ Ibid.

²⁷ Ockwell D., Ambuj S., de Coninck H., (2014) Collaborative research and Development for climate technology transfer and uptake in Developing Countries: towards a needs driven approach

²⁸<https://norden.diva-portal.org/smash/get/diva2:915864/FULLTEXT01.pdf>

²⁹https://www.thegef.org/sites/default/files/publications/GEF-TechTransfer-lowres_final_2.pdf

technology transfer to operate effectively.

Moreover, as shown by the Kenyan case, finding business models that allow an equitable distribution of gains and transparent decision-making process, can be a prerequisite for the successfulness and continuity of a program. In this case,³⁰ a local NGO promoted the reduction in the dependency on woodfuel, conventional diesel and kerosene. Using biodiesel made from Croton seed oil at the household level proved to have a relevant impact in the improvement of environmentally sustainable practices. Additionally, it also increased rural household incomes – by creating employment for the many workers involved in the collection, transportation and processing of the seeds. UNFCCC negotiators should make sure that projects dealing with technology transfer/development also consider social equity implication.

Lessons Learned from Technology Transfer and Development's projects

As highlighted, multiple initiatives can take place outside the UNFCCC to foster climate change mitigation and technology transfer. A few key points, however, seem to emerge as examples of best practices that TM negotiators can take into account:³¹

(i) In case of private financed projects, national and local government participation and support should be provided from the outset of the projects.

³⁰http://www.esmap.org/sites/esmap.org/files/DocumentLibrary/AFREA%20Energizing%20Africa_Web_0424.pdf

³¹ Supra note 28

(ii) It is important to involve local or national companies active in the specific sector. This will lower the technical risk and boost financial attractiveness.

(iii) Projects should look at a fair distribution of benefits and social equity. Furthermore, they should be located in countries with supportive national policies and low technical barriers.

Recommendations & Conclusion

This note has described the major challenges facing the current UNFCCC technology mechanism. Moreover, on the basis of the relevant literature as well as on the ongoing state of play of the negotiations, this paper has also presented conceivable alternatives to foster technology development and transfer. Undeniably, many developing and least-developed countries consider technology arrangements as crucial in order to reach their NDCs. However, in order for the TM to work more effectively, a few general recommendations could be considered by UNFCCC climate negotiators in view of the COP 23:

(i) Negotiators should support any initiative promoting an increase of resources available for the CTCN.

(ii) Concerning the TEC, selecting its members on the basis of technical expertise rather than political considerations, could increase the overall effectiveness of this body.

(iii) Negotiators from developing and least developed countries should go on supporting an international agreement on technology

transfer for low carbon technology development. Such an agreement will be an important strategy in climate change adaptations and mitigation, as developing countries alone don't have enough resources to invest in R&D.

(iv) UNFCCC, and particularly the CTCN, could take into consideration a number of ways to leverage technology development and transfer. This paper has provided examples of projects financed by PPPs, international funds and local NGOs. Overall, these experiences have shown that it can be an effective strategy to involve local government and companies' expertise. Furthermore, removing technical barriers, as well as including fairness and social equity concerns can be crucial to increase a project's success.

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37-39, Rue de Vermont, 1202 Geneva, Switzerland

geneva@cuts.org • www.cuts-geneva.org

Ph: +41 (0) 22 734 60 80 | Fax:+41 (0) 22 734 39 14 | Skype: cuts.grc

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