



## **A Stakeholders Perspective on opportunities and Challenges for Climate Technology Facilitation in Developing Countries: informing the Operation of the Climate Technology Centre & Network (CTCN)**

### **Preamble**

The Climate Technology Centre and Network (CTCN) is the operational arm of the Technology Mechanism established by Parties under the United Nations Framework Convention on Climate Change (UNFCCC). It is hosted and managed by the UNEP in collaboration with UNIDO and with the support of 11 Centres of Excellence, forming a Consortium of like-minded partners, located both in developing and developed countries.<sup>1</sup>

The CTCN works to reduce the risks and costs of technology development and transfer by assisting developing countries make better informed decisions about mitigation and adaptation technologies. It will promote accelerated, diversified and scaled-up transfer and uptake of Environmentally Sound Technologies (EST) for climate change mitigation and adaptation, consistent with the national socio-economic circumstances and sustainable development priorities of the countries requesting technical assistance.

In the process of establishing the CTCN, a widespread stakeholders consultation was undertaken with a twofold objective, namely to 1) disseminate information with regard to the CTCN and the services it is mandated to deliver, and to 2) seek stakeholders views and expectations.

The series of CTCN Regional Expert Dialogues was planned to help UNEP and UNIDO with the Consortium partners understand the challenges and priorities of each region and thus assist the CTCN to respond effectively to their needs. They were conducted as semi-structured dialogues where regional experts expressed their views on barriers, needs and priorities and on how the CTCN can best support countries in the respective regions.

The experts invited to the workshops included a wide spectrum of stakeholder types with the objective to capture a broad range of perspectives. Indeed, the dissemination of climate technologies involves the intervention of a number of actors, each having a specific role to play in unfolding the potential of technological advancement in light of the challenges and potential opportunities a changing climate presents. With this in mind, a balanced mix of representatives from government institutions, international organisations, Non-Governmental Organisations (NGO), private sector, and financial institutions were conveyed to the Regional Expert Dialogues.

This paper distils the essence of the deliberations and reports on the outcomes of those consultations. It is structured as follows. The first section touches upon the context in which the

---

<sup>1</sup> Additional information about the CTCN at [www.unep.org/climatechange/ctcn/](http://www.unep.org/climatechange/ctcn/)

CTCN operates. The second section discusses the much-needed demand-driven approach to technology facilitation and makes the case for local ownership. In section three, we elaborate on what stakeholders perceive as salient issues that the CTCN ought to tackle. And finally, section four captures perspectives on operational aspects and discusses how best the CTCN should tailor its services to address existing gaps and barriers.

## **1. Background and Political Thrust**

With climate change arguably considered as one of the major contemporary challenges our Society is facing, a shift towards low-carbon and climate resilient development seems to represent an urgent imperative. Access to new and existing technologies, amongst many other ingredients, for both adaptation and mitigation is instrumental to this transformation.

The international community conveyed a clear signal during the United Nations Conference on Sustainable Development 2012, also referred to as Rio+20, held in Rio de Janeiro on 20-22 June 2012. The importance of access to sustainable development technologies was underlined as of central importance to promoting sustainable development. ‘The future we want’, the outcome document of the conference, also stresses the need for enhancing collaborative action on technology facilitation.

Similarly, the issue of technology transfer has been a cornerstone in the realm of the UNFCCC, and that since its establishment. Acknowledging the need to accelerate the transfer of climate change mitigation and adaptation technologies, the Parties to the Climate Change Convention took a major step forward by establishing the Technology Mechanism at the 16<sup>th</sup> session of the Conference of the Parties (COP) in Cancun in December 2010. The decision was to establish new institutions suited to address technology transfer, hence the Technology Mechanism would comprise of a Technology Executive Committee and a Climate Technology Centre and Network (CTCN).

## **2. A Demand-driven, Participatory Approach to Promoting Technology Development and Transfer**

In the recent years, significant efforts have been dedicated to developing a better understanding of the technology needs at national level. Noteworthy in this context are the country-specific Technology Needs Assessment (TNA), as well as follow up Technology Action Plans (TAP), carried out in a number of developing countries in all world regions. TNAs are perceived by stakeholders as a powerful tool to underpin interventions related to technology deployment, and will certainly inform interventions by the CTCN.

Notwithstanding the usefulness of TNAs as high level assessment with regard to technology needs, follow-up actions are required to capitalise on such process. Indeed, further work is required, using the information available as sound foundation, to detail the specific needs and possible technology options to respond to those with the ultimate objective to move toward concrete action and the implementation of appropriate technologies.

Experience has shown that political will, stakeholder engagement as well as local ownership represents a key success factor in the context of technology facilitation. From that perspective, it goes without noting that efforts to spur technology development and transfer ought to be aligned with national strategies and priorities. Against that background, the role of the National Designated Entity (NDE) – the body expected to act as CTCN focal point in the countries – to foster, nurture, and filter those requests will be instrumental. NDEs are also expected to perform as champions at national level in the context of efforts to encourage the deployment of climate technologies.

In terms of characteristics, stakeholders are of the views that NDEs should benefit from outreach and trust within all major economic sectors and stakeholders in order to adequately respond to climate technology needs. They should also be backed up with clear political commitment, and endowed with sufficient resources, as well as empowered by their respective government through appropriate delegation of authority to allow for effective operation.

There is obvious value in NDEs establishing mechanisms for stakeholders' consultations to ensure buy-in and to define strategic issues in a participatory fashion, such as priority technology and/or sectors for instance. In a similar vein, NDEs are also seen as an essential bridge between the private sector and public institutions. From that perspective, the private sector and prospective financiers should have an active role, e.g. be represented on the board/committee, in the NDE in the view of stakeholders. Vital to the credibility of the NDEs will be to operate in an unbiased manner, keeping away from vested interests.

### **3. Perceived Barriers, Needs and Priorities**

Major barriers to technology development and transfer are well documented in the literature. The deployment of climate technologies largely suffers from the same hindrances, as confirmed during the consultations. Broadly, stakeholders highlighted a range of issues, including notably the policy framework and enabling conditions (e.g. political will; good governance; foresight and medium- to long-term planning; policy integration, i.e. coordination between policy objectives; clear strategic orientation; macro-economic environment; in some cases small market size; disincentives, such as fossil fuel subsidies), the awareness and engagement of various stakeholders (e.g. reluctance to embrace new technologies; socio-cultural constraints; availability of a platform to engage such as NDE; limited understanding of gaps, needs, and opportunities; unavailability of case studies and demonstrations), the (un)availability of technologies in the broad sense (lack of infrastructure; unavailability of technology providers; limited ability and experience in adapting technologies to suit specific needs and contexts; pilots; bias towards large-scale technologies), asymmetry in access to information and data (baseline data; benchmarking; information on intellectual property rights), technology innovation capacity (limited capacity to develop bankable projects; restrained human capacity; high cost and risk), and access to financing (inability to access existing funding mechanisms; deterrent cost of capital for investment; unavailability of appropriate financing mechanisms).

The expectations are high for the CTCN to address those barriers in a systematic and holistic manner. Stakeholders underlined the potential of the CTCN, supported by the convening power of

the United Nations, to act as honest broker of climate technologies. The services the CTCN will be delivering to promote the deployment of climate technologies could be targeted at any of the stages of the technology innovation process, ranging from R&D to widespread market deployment. This being noted, stakeholders are of the view that those services should first and foremost focus on current bottlenecks (i.e. prevailing barriers) in the various contexts.

Considering the limited availability of resources to work on those issues, it is legitimate to set priorities and establish key principles for requests for technical assistance reaching the CTCN. From that perspective, stakeholders felt strongly about the need to have a national partner to support the implementation of the intervention. Beside the obvious advantage of ensuring the contextualisation and relevance of the efforts, there are also clear opportunities for capacity building, both human and institutional.

Furthermore, the prospect in terms of sustainability of the undertaking, as well as opportunities for replication and scaling up, would hence be greater. In a similar vein, experts noted the need for technical assistance to the beneficiary countries to develop a strategy that goes beyond the timeframe of the technical assistance intervention itself. Beside this, it was felt that priority should be given to technical assistance leading to actions with a demonstrated potential to be funded. This could be achieved, for instance, through a co-financing commitment that could potentially unlock or leverage larger resources.

Stakeholders, during the consultations, placed emphasis on prioritising high impact interventions, and noted the importance of issues related to ability to replicate and scale up actions. Indeed, it was felt that, given the magnitude of the challenge at hand, interventions by the CTCN would be most beneficial if used as catalyst. More concretely, placing priority on a larger number of easily deployable technologies is likely to yield greater results in the medium-term than actions geared towards single, more complex technologies.

The CTCN will also have a key role in coordinating and seeking synergies amongst and between sectors, countries and regions, for example by clustering demand to reach critical mass. Indeed, programmatic and/or sectoral approaches present evident benefits vis-a-vis a piecemeal, project-by-project approach, notably in terms of reducing the transaction costs of the financing institution. Similarly, and from that perspective, developing regional or multi-country proposals would stand better chances to materialise and be implemented, particularly from the perspective of attracting the needed financial resources.

In discussing barriers to investment, the pivotal role of the private sector was highlighted in several occasions. From that perspective, expectations are high for the CTCN to assist in engaging with the corporate world. Financing environmental-sound technologies in developing countries is commonly perceived as a risky endeavour. Therefore, adequate risk mitigation measures, *inter alia* by addressing the issue related to information asymmetry, could greatly contribute to the diffusion of climate technologies, provided that the opportunities are sufficiently financially attractive.

Small and Medium Enterprises (SME) commonly form the backbone of developing country economies. Supporting SMEs with regard to technology upgrading could unfold significant socio-

economic benefits. Indeed, SMEs typically provide for the bulk of employment opportunities, and greatly contribute to developing countries economic development.

South-south cooperation was also mentioned in the consultations as a vehicle that is currently underutilised to spur technology development and transfer. A number of successful examples in the recent years provide useful case studies from which valuable lessons can be learned with the objective of replicating such models. The rich diversity of the South provides an excellent opportunity for forging mutually beneficial partnerships.

It was argued that activities relating to adaptation should be based on an ecosystem approach, including methodologies for valuing ecosystem services. They could focus, as argued by stakeholder, on the following areas: coastal zones, mountains, flood plains and deltas, arid zones, and cities. The initial focus on adaptation technologies could be on: early warning and disaster management (risk mapping); water management (water catchments, irrigation, floods, water conservation, water quality, waste water and water treatment); sustainable agricultural practices (food systems and subsistence farming directly impacted by climate variability); agro-forestry and agro-biodiversity (food security); urban planning (including sustainable cities, transport, design codes and building standards, and waste management); and tourism.

Priority areas for mitigation mentioned by stakeholders include: energy (renewable energy, energy efficiency and conservation, and the decarbonization of fossil energy systems such as coal bed technologies, waste heat recovery technologies, co-generation); resource efficiency in the industrial sector (specifically in resource intensive industries such as iron, steel and cement); carbon sequestration (afforestation, agro-forestry); and bi-national or regional power interconnections.

It is important to explore the nexus between mitigation and adaptation, such as in the following areas: transport, sustainable cities (e.g. landfills), agriculture (strengthen the scientific and productive human capital stock, foster innovation at the producer level, and improve rural extension services).

#### **4. Stakeholders Perspectives on the CTCN Service Delivery**

Essentially, the CTCN, by design, has three functions, namely to manage and respond to requests from development countries; to foster collaboration and access to information and knowledge to accelerate technology transfer; and to strengthen networks, partnerships and capacity building for climate technology transfer.

Beside the function of responding to requests, there is the view amongst stakeholders that the CTCN also ought to play a more pro-active role in accelerating technology transfer. For instance, there is a need to engage with and support NDEs in generating quality requests by providing adequate information and guidelines, showcasing best-practice examples, etc. There is also significant potential in supporting governments to mainstream issues related to climate technology into national development strategies and policies.

It will be instrumental for the CTCN to identify at an early stage local champions and to provide them with a platform for communication with the other stakeholders. Producing briefings and targeted material, translated into local languages, will be key to make the case related to potential savings, impact on competitiveness, new market potential, and socio-economic advantages more broadly.

Besides, access to finance commonly being a bottleneck to investment in climate technologies, the CTCN is also expected to provide guidance on financing mechanisms and sources. As a concrete example, stakeholders are craving for easily accessible information on available funding mechanisms, be them standard or innovative. Aside from supporting the development of bankable project proposals, the CTCN would add value in liaising with and ensuring that the financing institutions are involved and engaged from the onset of the project ideas.

Disseminating information on best-practice and lessons learned from existing models and instruments would be key to foster private sector engagement, such as through public-private partnerships for instance, risk mitigation mechanisms, incentives/disincentives, and regulations. One concrete suggestion arising from the consultations is to promote private financing institutions to establish dedicated credit line and/or soft loans for investments stemming out CTCN activities.

The issue of Intellectual Property Rights (IPR) is recurrently arising in the realm of technology transfer. Whilst the jury is still out on the extent to which IPR represents a major barrier, stakeholders feel that guidance and assistance on the topic would be helpful. One suggestion was to establish a Climate Technology Transfer Registry System which would be used as mechanism to waive IPR and copyright issues on selected mature technologies.

Regarding the third function of the CTCN, there is a near consensus on the value to establish and nurture a community of practice with the objective of promoting cross-fertilisation. A key element of this, from the perspective of stakeholders consulted, is networking and in particular facilitating the relationship between public and private agents. There is thus a need for match-making and twinning type of efforts in order to liaise the technical providers of technologies and associated services (e.g. financing) with the actual demand for those. To that end, conducting outreach campaigns and convening networking meetings to promote partnership building are perceived as important measures.

Equally important are issues pertaining to knowledge management and capacity building. Stakeholders have expressed a keen interest in receiving trainings and accessing tools on various issues, including as illustrative examples the design of integrated policies; instruments to assess policy impacts; technology roadmapping of foresight; design and implementation of public-private partnerships; innovative financing.

There is considerable appetite for learning from past experiences in promoting climate technologies. Thus, a compilation of success stories and lessons learned, including those stemming from failures, is deemed useful. Also, a catalogue of climate technologies with broad specifications and requirements, including for example standard cost of installation, maintenance and operating costs, could be informative. This information should be made available in a versatile and easy-to-



access knowledge management platform.

## **5. Next steps**

The wealth of information gathered during the series of Regional Expert Dialogues is instrumental in positioning the CTCN. The perspective of key stakeholders allows to ensure that the services the CTCN is offering respond to needs expressed, contribute to fill up a gap and is complementary to past and on-going related activities.

Whereas this exercise has proved immensely useful, efforts continue to integrate the view and expectations of stakeholders into the shaping of the CTCN activities. The CTCN is currently reaching out to National Designated Entities to further engage with the constituency it intends to serve.

Annex A: List of Regional Expert Dialogues

	<b>Location</b>	<b>Date</b>
<i>Asia</i>	Amari Watergate Hotel Bangkok, Thailand	21-22 May 2013
<i>Latin America and the Caribbean</i>	Centro de Formación de la Cooperación Española Cartagena de Indias, Colombia	18-19 July 2013
<i>Anglophone Africa</i>	DBSA Auditorium Midrand, South Africa	29-30 July 2013
<i>Francophone Africa</i>	Hôtel Radisson Dakar, Sénégal	3-4 September 2013
<i>Northern America</i>	United Nations Foundation Washington, DC, USA	18 September 2013
<i>Europe</i>	Federation of Belgian Enterprises Brussels, Belgium	30 October 2013