Expert Meeting on National Systems of Innovation
Paris, 21-23 February 2018

Summary of discussions

Executive Summary

The Climate Technology Centre and Network (CTCN), in collaboration with the Energy and Resources Institute (TERI), organised an expert meeting on National Systems of Innovation (NSI). The meeting discussed options for a standardized approach to strengthen NSI in developing countries, in response to the mandate received by the CTCN to undertake further work to strengthen the Research, Development, and Demonstration (RD&D) of climate technologies in developing countries. The meeting also provided an opportunity to discuss how the CTCN can engage with the Green Climate Fund (GCF) Secretariat in the design of the call for proposals the GCF will issue in 2019 to support climate technology incubators and accelerators in developing countries.

The three-day workshop brought together experts from governments, financial institutions, intergovernmental organisations, non-governmental organisations, and research institutions. Participants engaged in wide-ranging, in-depth and pragmatic discussions of successful approaches to support NSI in developing countries.

Summary of key messages:

- There is there is no one-size-fits-all approach to NSI.
- There is no need to build NSI from scratch. It is better to strengthen existing institutions than build new ones.
- Twinning arrangements (both North-South and South-South) between research institutions can help build institutional capacities.
- The private sector plays an important role in assimilating, adapting and improving new technologies.
- Networking platforms can assist in the sharing of experiences, best practices and lessons learned.
- It is challenging to measure the success / impact of NSI / innovation (i.e. innovation cannot be assessed exclusively in term of emission reductions) The development of new indicators to measure the success/impact of NSI/innovation is needed.
- It is important to provide technical assistance and coaching to developing countries that will strengthen their proposals to access GCF funding.
- New approaches and business models that strengthen the investment case for adaptation technologies appear to be needed.

During the discussion, experts gave feedback on the CTCN approach to National Systems of Innovation and on Incubators and Accelerators, as follows:

Towards a CTCN approach on NSI

In response to technical assistance requests, the CTCN could provide support to developing countries on:

- Strengthening enabling frameworks (e.g. sector-specific innovation roadmaps; policies that incentivize investments in innovation; standards and certifications for emerging technologies; procurement guidelines).
- Strengthening capacity of “coordinating institutions”.
- Developing technology elements of funding proposals.
- Facilitating stakeholder cooperation (e.g. stimulate the linkages between government, academia, the private sector and research organization/institutions).
- Facilitating twinning arrangements between countries’ research institutions on climate technology innovation.

Independent of country requests, the CTCN could:

- Develop a methodology to map and qualitatively assess national and regional institutions engaged in innovation.
- Share information related to innovation for climate technology: best practices, tools, costs and performance of specific technologies, etc.
- Develop indicators to measure innovation.

Towards a CTCN approach on Incubators/Accelerators

CTCN should not engage in the establishment, promotion, or operation of an incubator – accelerator programme but rather:

- Use its convening power to establish a network of incubators.
- Draw and share lessons learned from technical assistance.
- Distil knowledge and information from the network: what is working, what is not.
- Provide support: strengthen capacities of existing institutions.
- Focus strongly on adaptation as it is more dependent on best practices, promotion of local solutions, and endogenous technologies

Background

Parties to the United Nations Framework Convention on Climate Change (UNFCCC) requested the CTCN undertake further work in supporting developing countries to strengthen their ability to undertake Research, Development and Demonstration (RD&D) of new technologies to address climate change. The GCF has received a similar mandate and its Board confirmed the interest of the GCF in receiving proposals aimed at strengthening National Systems of Innovation (NSI) in developing countries under the Readiness Support Programme (cf. GCF Board Decision B.18/03).

Preceding this meeting, a "First-Of-A-Kind (FOAK)" workshop was organised by CTCN on 22-23 May 2017. At the workshop, experts recommended CTCN to use its convening power to bring together research, finance, government, and intergovernmental bodies to ensure a balanced approach to successful RD&D initiatives. It recommended CTCN to work with National Designated Entities (NDEs) to identify appropriate interventions aligned with Nationally Determined Contributions (NDCs) guidelines, including up scaling supportive systems for institutional strengthening and capacity building.

Objectives

To allow for an exchange of ideas on NSI and the role CTCN can play in supporting developing countries to strengthen their NSI, and discuss ways in which the CTCN can support the GCF Secretariat in the design of the call for proposals for the support of incubators and accelerators in developing countries.

NSI: Framework and National Experience

Mr. Robby Berloznik, VITO, shared insights from TEC Brief # 7, published in 2015, on Strengthening National Systems of Innovation to Enhance Action on Climate Change. Innovation is a multi-layered system which involves interaction among stakeholders including governments, the private sector, academia and investors. Appropriate frameworks and policies are needed to drive innovation, especially in developing countries. It is important to identify need-based innovation. Also new indicators to measure the success of innovation, in addition to emission reduction, are required.

National level experiences of building NSI in India, Kenya and Korea were shared by experts from these countries. Dr. Ambuj Sagar, Indian Institute of Technology, while presenting a Case Studies on India mentioned the need to focus on strategic interventions that can leverage existing capacities and address organizational and institutional gaps. He emphasised that programmatic efforts have greater impact in comparison to projects. In his presentation of the Case Studies on Kenya, Mr. Charles Mutai, Ministry of Environment and Natural Resources – Kenya, mentioned that innovation is a key enabler of the national development agenda and sustainable development goals (SDGs). Mr. Mutai noted the weak linkages among a wide range of actors in developing countries, and would benefit from a networking platform to share experiences and best practices. To solve the inefficiency in diffusion of new technology, scalability and commercialization, it is crucial to strengthen capacity building and implement further training activities together with the improvement of

innovation infrastructures and enabling ecosystems. He concluded by saying *''A well-designed enabling environment with relevant mechanisms backed by political will can spur private sector investment and foster collaboration among actors.''.* Dr. Suil Kang, Ministry of Science and ICT (MSIT) – South Korea while presenting the Case studies on the Republic of Korea mentioned that institutional frameworks and organizational arrangements play an important role in innovation. The private sector plays an important role as it is particularly effective in assimilating, adapting and improving new technologies. Hence, it is crucial to strengthen their capacities together with improving the innovation infrastructure and enabling ecosystem.

Participants agreed that the design and implementation of strategies to foster innovation should be need-based and take into account the local context as there is not a one-size-fits-all approach. However, appropriate frameworks and policies can spur innovation and it was suggested that CTCN could help build capacities and platforms to share experiences and best practices at the national level. It could also provide advice to governments on key elements including strategies and roadmaps, technology prioritization, and business models that support innovation in line with its mandate.

Towards a CTCN approach to National Systems of Innovation

Most developing countries have already identified their technology needs but face challenges related to knowledge and funding. The key points emerging from group work and roundtable discussions on the approach of CTCN to build National Systems of Innovation (NSI) are summarised below.

- NSI exists in all countries. Hence there is no need to build NSI from scratch. CTCN could help countries identifying measures needed to strengthen their NSI by undertaking activities such as mapping of existing NSI in the country, charting pathways for different technologies, defining the roles of different actors and institutions, undertaking SWOT analysis, and so on.
- Strengthen the system operators providing Training of Trainers (TOT) modules, facilitate twinning arrangements between different countries' research institutions (North-South, South-South), etc. The focus could be on institutions working on innovation in strategic areas (e.g. solar, SMEs) as defined in country NDCs
- Promote engagement of different stakeholders', particularly from the private sector and especially SMEs as these firms represent a large percentage of the private sector in most countries.
- Strengthen knowledge sharing by collecting and disseminating best practices, tools, and business models. A priority sector like renewable energy, waste treatment or transportation could be selected by countries for establishing a knowledge clearinghouse.
- Advise countries on leveraging co-funding from GCF and other sources. Support could include providing technical assistance during proposal preparation as well as advice on risk mitigation of non-bankable projects.

- Support in development of enabling policies and linkages between different stakeholders (ministries, research institutions, academics, NGOs).

Incubators and Accelerators: Sharing of experiences

Invited experts shared presented experiences related to their incubators and accelerators programmes. Mr. Hervé Pernin, ADEME made a presentation on the French innovation ecosystem. ADEME supports innovation through grants, reimbursable subsidies as well as venture capital. Their research and innovation work is supported by government ministries, industry, public investment banks, large private funders like EDF, Orange and Engie, and noted that energy and environment is not a key focus area for start-ups. Mr. Jonathan Coony, World Bank shared the experience of the Bank in engaging with incubators and accelerators in developing countries through its Climate Innovation Centres (CIC). These accelerators and incubators have been supported by the bank with a grant meant to cover their operational costs without the obligation to be profitable for first five years. Beyond that, they should sustain themselves and show profitability. Mr. Benoist Vercherin, Climate-KIC France mentioned that Climate-KIC is Europe's largest public-private innovation partnership focusing on innovations related to climate mitigation and adaptation. Started in 2010 with funding from the European Commission through the European Institute of Technology and Innovation, Climate-KIC partners with SMEs as well as large corporations. Help is provided in the entire innovation cycle – ideation, pre-incubation and incubation. They have accelerated more than 1000 start-ups that have successfully raised over 450 million Euros.

List of participants

1. Herve Pernin, The French Environment and Energy Management Agency
2. Kevin Chika Urama, African Development Bank
3. Jukka Uosukainen, Climate Technology Centre and Network
4. Rajiv Garg, Climate Technology Centre and Network
5. Benoist Vercherin, Climate-KIC France
6. Mahama Kappiah, ECOWAS Centre for Renewable Energy & Energy Efficiency
7. Daniele Poponi, European Commission
8. Robby Berloznik, Flemish Institute for Technological Research (VITO)
9. Sue youn KIM, Green Technology Centre Korea
10. Ry won YANG, Green Technology Centre Korea
11. Andrea Iro, Green Climate Fund
12. Ambuj Sagar, Indian Institute of Technology
13. Claudia Octaviano, Instituto Nacional de Ecología y Cambio Climático, Mexico
14. Matthew Kennedy, International Energy Research Centre, Ireland
15. Charles Mutai, Kenya - Ministry of Environment & Natural Resources
16. Kang Su-il, Korea - Ministry of science and ICT
17. Gabriel Blanco, National University of Central Buenos Aires
18. Ron Benioff, National Renewable Energy Lab
19. Heleen De Coninck, Radboud University
20. Girish Sethi, The Energy and Resources Institute
21. Prosanto Pal, The Energy and Resources Institute
22. Surachai Sathitkunarat, Thailand - Ministry of Science and Technology
23. Giulia Ferrini, United Nations Environment
24. Manfredi Caltagirone, United Nations Environment
25. Mark Radka, United Nations Environment
26. Victor Low, United Nations Environment
27. Yoann Poline, United Nations Environment
28. Sara Lærke Meltofte Trærup, UNEP Danish Technical University Partnership
29. Asher Lessels, United Nations Framework Convention on Climate Change
30. Katarina Barunica, United Nations Industrial Development Organization
31. Olivier GENSE, Embassy of Japan
32. Hidenori TANAKA, Embassy of Japan
33. Hideki YAZAWA, Embassy of Japan
34. Alessandra Novak, United State Embassy
35. Nguyen Thi Dieu Trinh, Vietnam - Ministry of Planning and Investment
36. Anja Von Der Ropp, World Intellectual Property Organization
37. Jonathan Coony, World Bank (by video conference)
38. Gordon Ian Myers, International Finance Corporation (by video conference)