United Nations Climate Change
Technology Executive Committee

CTCN
UN Climate Technology Centre & Network

Technology and NDCs

Summary for Policymakers

2023

Introduction

It is clear that integrating climate technology and governance frameworks at the national level, including through nationally determined contributions (NDCs) under the Paris Agreement, is essential for the successful implementation of climate technology projects.

As countries around the world strive to periodically update their NDCs and subsequently meet their NDC targets, it is essential to understand how they are integrating climate technologies in their NDCs, the technology needs and challenges that they face, the linkages between policy and implementation and between technology and national adaptation plans (NAPs) in the context of NDC implementation and the key insights in terms of climate technology uptake, gender-responsiveness, financing, co-benefits, sustainability, replicability and the potential for up-scaling successful cases in different sectors and socio-economic contexts.

The Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN) are pleased to present this summary for policymakers of the joint TEC-CTCN publication on technology and NDCs,[1] which highlights success stories and lessons learned on technology uptake. The publication builds on previous work of the TEC and the CTCN and incorporates insights gathered from technology stakeholders through interviews, success stories and lessons learned regarding the uptake of technologies in support of NDC implementation. The publication is intended for policymakers and CTCN national designated entities (NDEs) and aims to support them in identifying ways of integrating technology considerations in revised NDCs and promoting technology uptake to support NDC implementation.

The twelve success stories featured in the publication showcase the effective uptake of climate change adaptation and mitigation technologies in different geographical regions and technology sectors:

- Developing technological tools for adapting to climate change in the coastal zones of Uruguay
- Adapting to floods and droughts in India through the water storage technology Bhungroo
- Making buildings more energy-efficient in South Africa
- Increasing energy efficiency in the Solomon Islands
- Accelerating the uptake of climate technologies in micro-, small and medium-sized enterprises in Chile
- Strengthening climate-resilient agriculture in the Dominican Republic
- Utilizing ocean energy in Nauru
- Women-led energy cooperatives as a pathway to a just energy transition in Uganda
- Pioneering triangular cooperation on renewable energy technology transfer in Ghana and Zambia with China and UNDP
- Improving water supply management in Grenada through GIS-based monitoring and control system for water loss reduction
- Increasing access to clean and affordable decentralized energy services in Malawi

1 https://unfccc.int/ttclear/tec/techandndc.html.

Key findings

NDCs provide varying levels of information on technology. In their latest NDCs, as at September 2022, the majority of Parties included information on technology even though there is no provision in the Paris Agreement or related decisions requesting such information. A growing number of Parties have utilized insights gained from technology needs assessments (TNAs) and CTCN technical assistance in this regard. However, the level of detail on technology aspects varies significantly; only a few Parties included information on technology challenges in their revised NDCs.

The process to formulate and implement NAPs can provide valuable inputs. The NAP process can help to identify technology options for the adaptation component of NDCs, while the development of NDCs can make NAPs or sectoral NAPs concrete and actionable. NDCs can serve as a helpful tool to inform the development of NAPs, in particular for countries without a NAP.

There is no one-size-fits-all approach. Local circumstances, priorities and capacities within a country can be as diverse as those among countries. The challenge lies in identifying or developing not only locally tailored technology solutions but identify or develop locally adjusted approaches that ensure the successful uptake of technologies. Specifically, this involves:

- Fostering stakeholder engagement and buy-in for the technology solution and uptake approach;
- Ensuring sufficient absorptive capacity among all technology stakeholders;
- Engaging the private sector effectively and sustainably;
- Ensuring sufficient market demand for the technology;
- Engaging policymakers in scaling up successful community-level projects.

Stakeholder engagement is key for effective and efficient technology solutions. Effective stakeholder engagement plays a crucial role in climate technology planning and implementation. It not only helps to identify effective technology solutions in different local contexts but also creates awareness and fosters co-ownership of these solutions. Inclusive, equitable and gender-responsive processes are more likely to result in technology solutions being embraced, as they reflect local needs, capacities and practices while generating awareness of the benefits of introducing the technology.

For environmentally sound technologies to be adopted sustainably, they need to be economically and socially viable. The long-term sustainability of environmentally sound technologies relies on their economic, institutional and social viability. The financial feasibility of envisaged business models is as important as the technical feasibility and the social acceptance of the technology. High initial investment costs can be partially overcome by pooling funds, developing innovative business models or accessing funds from multilateral donors or organizations, for example finance from the Green Climate Fund with technical assistance from the CTCN. Governments can play a major role in addressing challenges to technology uptake by creating enabling environments underpinned by appropriate regulatory and institutional frameworks. Local champions showcasing the success of technology solutions can be key in securing further financial, institutional and social support needed for technology uptake in a country.

Experience-sharing, capacity-building and demonstration accelerate technology uptake. Documenting and sharing technology uptake challenges, good practices and lessons learned can stimulate the uptake of similar technologies domestically or in other countries. The exchange of experience during the design of approaches and processes can result in immediate efficiency gains and accelerate action. Targeted capacity-building support for policymakers, technology providers and end-users that leverages shared experience and lessons learned can lead to significantly accelerated and sustained technology uptake.

Strong linkages are needed between policy and implementation. Policies need to guide implementation while reflecting implementation realities, including the technical, economic, social and institutional viability of technologies. Creating enabling environments for technology uptake requires technology-specific focus, promoting favourable market conditions, innovative financing and business models, and public programmes. At the same time, integrating climate technology projects and programmes into national policies and strategies such as NDCs enhances technology uptake.

Recommendations

To stimulate the technology uptake in NDC implementation, Parties and their NDEs could:

- **Promote the active participation and buy-in of all stakeholders in processes and technologies,** while fostering gender-responsive, inclusive, participatory and equitable approaches that consider the needs, priorities, knowledge and capacities of all technology stakeholders, including Indigenous Peoples, and generate awareness of technology benefits. The broad and effective participation of stakeholders is key to ensuring that technology uptake safeguards human rights and does not negatively impact local communities.

- **Voluntarily share more information on technology targets and needs in NDCs,** including by maximising the potential of TNAs to inform revised NDCs and facilitate NDC implementation. The TNA methodology includes detailed identification, prioritization, and assessment of sectors, technologies and implementation measures to overcome barriers for technology development and transfer. This could generally serve as a logical starting point for Parties that are preparing to update their NDC. TNAs could be further developed to explicitly analyse what is needed to implement existing NDCs, including by better aligning their focus and scope with the priority sectors included in the NDCs. Parties and NDEs may also consider building on the stakeholder engagement processes of TNAs, where available, to engage key line Ministries to ensure that TNA outcomes are considered in the preparation of revised NDCs. Similarly, the NAP process could be used to identify technology options for, and inform the development of, adaptation components of NDCs and adaptation communications.

- **Support market creation and expansion for prioritized technologies** by putting in place enabling legal and regulatory environments and enhancing the capacities of technology stakeholders. Adaptation technologies often require more public support than mitigation technologies because market-based approaches are more difficult to develop for them.

- **Create local champions and success stories.** Local champions and success stories showcasing the local economic and social benefits of environmentally sound technologies and their contribution to NDC implementation can help to leverage broader financial, institutional and social support for replicating and scaling up the technologies.

- **Systematically document and disseminate information on policies, schemes and programmes that foster technology uptake,** as well as on challenges and lessons learned in meeting NDC targets to inform future policymaking, technology prioritization and the preparation of revised NDCs and NAPs.

- **Make more use of the UNFCCC Technology Mechanism** by utilizing technical documents and recommendations on climate technologies prepared by the TEC and technical assistance for developing countries provided by the CTCN to implement the above-mentioned recommendations. Technical assistance provided by the CTCN can serve as an important catalyst for accessing larger amounts of climate finance, for example from the Green Climate Fund, and thereby facilitate the uptake of climate technologies in support of NDC implementation in developing countries.

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About the Technology Executive Committee

The Technology Executive Committee is the policy component of the Technology Mechanism, which was established by the Conference of the Parties in 2010 to facilitate the implementation of enhanced action on climate technology development and transfer. The Paris Agreement established a technology framework to provide overarching guidance to the Technology Mechanism and mandated the TEC and CTCN to serve the Paris Agreement. The TEC analyses climate technology issues and develops policies that can accelerate the development and transfer of low-emission and climate resilient technologies.

About the Climate Technology Centre and Network (CTCN)

The Climate Technology Centre and Network (CTCN) is the implementation arm of the UNFCCC Technology Mechanism. The Centre promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. The CTCN provides technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries by harnessing the expertise of a global network of technology companies and institutions.

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A digital copy of this report can be downloaded from:
https://unfccc.int/ttclear/tec/techandndc.html