



United Nations
Climate Change Secretariat

**UNFCCC TECHNICAL
EXPERT MEETINGS 2019:
SUMMARY FOR POLICYMAKERS**



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BY PATRICIA ESPINOSA
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FOREWORD

The world faces a climate emergency. It is an existential issue representing the greatest challenge facing this generation. It means business as usual, which was always an option, is not an option anymore. All sectors of society are called upon to address it and we must utilize every tool at our disposal to do so. This includes in areas such as technology, business, finance and more.

Parties established the Technical Examination Processes on Mitigation and Adaptation, under which Technical Expert Meetings are held annually to look for effective responses to climate change in the areas of technology, policy, business and finance.

The process is more than a review; it is also an opportunity to discover and promote cooperative climate action. The technical experts who met on this year's two themes—adaptation finance and climate change mitigation in the agri-food chain—addressed several challenges related to those themes and also identified several recommendations.

This includes a call to align finance flows with finance needs, boost the role of public-private partnerships, improve private investment and better understand the needs of the end users of climate finance.

The experts also highlighted the need for adequate policy, regulatory and governance frameworks. To create them, the experts noted that collaboration is essential, from the national level to local authorities, and should include consideration and participation of the private sector, civil society, communities and development partners.

I welcome the outcomes of this year's Technical Examination Processes and wish to express appreciation for the work of the technical experts. I encourage Parties and policymakers at all levels to reflect on these findings and consider the recommendations put forward in this Summary.

BY TOMASZ CHRUSZCZOW (POLAND)
AND GONZALO MUÑOZ ABOGABIR (CHILE)

HIGH-LEVEL CHAMPIONS OF THE
MARRAKECH PARTNERSHIP



FOREWORD

Launched in 2014, the UNFCCC Technical Examination Process provides Parties and non-Party stakeholders with an annual platform to identify options for addressing climate change, with focus on technological innovation, business models and financial mechanisms. As such, the process provides a forum to convene actors in various sectors to help close the pre-2020 ambition gap and set the course for action beyond 2020.

This year, related Technical Expert Meetings around the globe—including regional meetings in Africa, Latin America and Asia—highlighted options for climate action in the agri-food chain and in finance for adaptation. Issues discussed included water and energy management in primary food production and processing, nature-based solutions, circular economy approaches, planning for adaptation finance, and private sector engagement.

This Summary for Policymakers identifies key action areas where governments and non-Party stakeholders need to work together. It demonstrates that technical and financial solutions exist and are commercially proven for large companies, small businesses, and farmers. However, successful implementation will require appropriate policy measures and supporting tools.

As Parties take stock of progress in implementing their Nationally Determined Contributions under the Paris Agreement, both mitigation and adaptation, and as they review their climate ambition in light of the latest scientific analyses, they should consider this important message from the Technical Examination Process: Solutions do exist and an increasing number of non-Party stakeholders are taking up climate action.

However, to accelerate implementation and enhance ambition, support and leadership are vital in terms of finance, technology, and capacity-building. This is especially so in developing countries as many climate solutions have the capacity to strengthen the sustainable development agenda at the national and regional levels.

We are pleased to present this Summary for Policymakers which summarizes the key outcomes of the Technical Expert Meetings held this year. Specific recommendations for policymakers are included on page 8.

We, the High-Level Champions of Global Climate Action, in addition to pledging our continual support would like to thank all Parties and non-Party stakeholders who helped make this year's process a success. We are confident that all actors—state and non-state actors alike—will continue to develop programmes of action to address climate challenges with urgency and ambition. The realities of climate change will demand it.



1

INTRODUCTION

This Summary for Policymakers is mandated by the Paris Agreement to provide Parties with information on specific policies, practices and actions representing best practices that have the potential to be rapidly scalable and replicable.

Under the UNFCCC's parallel Technical Examination Processes on Mitigation and Adaptation, which were launched in 2014 and 2015 respectively, Technical Expert Meetings (TEMs) on various themes are held annually with the aim to catalyze pre-2020 action. One set of TEMs (TEM-M) focus on mitigation topics and one (TEM-A) on adaptation. The TEMs give Party and non-Party actors a recurring venue to share experience and lessons from successful areas of action in technology, policies, business models and finance. The TEMs also serve to promote cooperative action.

In addition to the TEMs held during the Subsidiary Body meetings in Bonn, regional TEMs were introduced in 2018 to bring together a wider range of actors. In 2019, regional TEMs were held during Latin America and Caribbean Climate Week in Brazil (TEM-M and TEM-A), the Korea Global Adaptation Week in South

Korea (TEM-A), the Asia-Pacific Climate Week in Thailand (TEM-M and TEM-A), and the Central Asian Climate Change Conference in Uzbekistan (TEM-A).

The 2019 Technical Expert Meetings on Mitigation (TEM-M) convened under the heading "Off-grid and Decentralized Energy Solutions for Smart Energy and Water Use in the Agri-food Chain". Sessions discussed solutions for water and energy management in primary food production and food processing, transport and storage. Participants presented technical decarbonization options, circular economy approaches and nature-based solutions, and reflected on the implications for food security, sustainable development and policy and regulatory frameworks.

The 2019 Technical Expert Meetings on Adaptation (TEM-A) focused on "Adaptation finance, including the private sector". Topics discussed included how to: maximize synergies in the climate finance architecture; enhance finance through adaptation planning; commercialize adaptation technology solutions; and mobilize and engage the private sector.

CHALLENGES

Primary food production is a resource-intensive activity. Heavy reliance on fossil-fuel-based energy and significant water and fertilizer use result in environmental impacts, including greenhouse gas emissions. Furthermore, increasing food demand, due to an ever-growing population, and a changing climate will further exacerbate the environmental impacts. While smart energy and resource-efficient solutions exist, agri-food systems remain a major contributor to climate change. The uptake and replication of innovative technologies at larger scale are inhibited in great part because of insufficient finance and technical capacity. In addition to these implementation challenges, there are also shortcomings in planning capacity and policy barriers. This is particularly evident with regard to circular economy and nature-based mitigation solutions, which have the potential to reduce energy and irrigation needs but must be integrated early into the planning process and require an integrated policy planning approach.

In the post-harvest phase, food storage, transport and processing are significant emission drivers. Moreover, large amounts of food waste result in emission-intensive products not being used. Food production is also significant for rural communities that rely on agriculture for subsistence. Currently, many communities suffer from a lack of access to affordable energy and resources and do not have the capacity to obtain and implement climate-friendly technologies and practices. As a result, communities are locked into producing low-quality produce with little diversity and low productivity.

SOLUTIONS

Innovations that can help to reduce water and energy use in the pre- and post-harvest phases exist. Renewable

energy and energy-efficient technologies are mature, and the installation costs are declining. Many examples exist of successful applications throughout the global agri-food sector, from the smallholder farmer to the large food processing business. Low-carbon technologies with high growth potential include wind- and solar-powered water pumps, solar water heaters, bioenergy crop-drying heaters, mini-hydro power turbines, insulated cool stores, lighting based on light-emitting diodes in greenhouses, precision irrigation systems, biogas for transport fuel, and solar photovoltaic milk coolers. For example, in India solar irrigation solutions are currently being rolled out. These zero-emissions systems allow farmers to save up to 50 per cent of operating costs, compared to conventional diesel pumps.¹ Other innovative solutions relevant to the agri-food production sector include data tools which provide accurate information about weather and soil conditions. Enhanced data availability has the potential to make farming practices more efficient, thereby reducing emissions and water use.²

During the post-harvest and processing stages, there is potential to significantly reduce energy consumption by implementing energy-saving technologies. In addition, decarbonization is possible using innovative renewable technologies, such as solar cooling and processing solutions and natural refrigerant applications. Innovations which have already been piloted include solar milk-cooling systems (tested in West Kenya) and solar cacao bean driers (tested in Cameroon).³ There is also potential to implement circular economy solutions, such as capturing biogas from wastewater treatment systems to provide energy for heat, electricity or transport, and to use wastewater to recover nutrients for crop production. Further, nature-based solutions can offer options to restore and preserve ecosystems. Specifically, nature-based solutions can help to capture water, filter pollutants and preserve the genetic diversity of plants, thereby increasing resilience. For example, a project in the Interior

1. See presentation by Mr Gaurav Kumar (Claroenergy Pvt Ldf) held at TEM-M session I "Decarbonizing the primary food production phase of the agri-food chain" on 20 June 2019, available at <https://unfccc.int/sites/default/files/resource/UNFCCC%20presentation-June19.pdf>.
2. See presentation by Mr Daniel Paska (Ericsson) held at TEM-M session I "Decarbonizing the primary food production phase of the agri-food chain" on 20 June 2019, available at <https://unfccc.int/sites/default/files/resource/Ericsson%20Weather%20Data%20-%20June%202019.pdf>.
3. See presentation by Ms Georgia Badelt (GeoCode International) held at TEM-M session II "Decarbonizing the post-harvesting phase of the agri-food chain" on 20 June 2019, available at https://unfccc.int/sites/default/files/resource/UNFCCC_pptHandout.pdf.

Atlantic Forest in Argentina is relying on a mix of native trees and other plants to regenerate local agroforestry systems.⁴

Importantly, for these innovations to take hold in local communities, appropriate policy frameworks are essential. There is a need to create an enabling environment, provide appropriate access to finance, and communicate the cost and practical implications of innovative technologies and practices to end-users.⁵ Technologies and practices must be tailored to fit local contexts, and training and maintenance services need to be provided. With these support structures in place, rural communities can significantly gain from secure access to affordable and environmentally sustainable energy. Benefits include saving on fuel and fertilizer expenditure, creating jobs and improving access to water and food. Such benefits can improve income levels, health conditions and gender equality, thereby contributing to the realization of national targets under the Paris Agreement and the sustainable development agenda.

RECOMMENDATIONS

Aligning finance flows with finance needs

- While some technologies, such as decentralised renewable energy systems, already run on viable business models and have the potential to outcompete conventional energy sources, other technologies require financial support. Governments can support proven solutions with grants and subsidies.
- Governments can work with the private sector to create a policy and regulatory environment that enables effective public-private partnerships. Blended finance can help to de-risk investments in new technologies, thereby creating incentives for private sector investment.

- Industry and development partners can work with private finance institutions to demonstrate the business case for investing in clean energy and circular economy solutions and to develop awareness and build expertise.

Designing adequate policy, regulatory and governance frameworks

- Governments must set enabling policy and regulatory frameworks to create the incentives for more efficient use of energy and water. In the agri-food sector this should include providing incentives for the uptake of new farming practices, reducing import restrictions and tariffs for clean technologies, and abandoning fossil fuel subsidies.
- Governments can also use regulations to drive investments for example, in the agri-food sector by introducing mandatory energy efficiency audits and adapting land-use regulations.
- Nature-based solutions and circular economy approaches bring benefits beyond emission reductions but require long-term and integrated government planning across ministerial and administrative silos. In addition, the setting up of governance structures that allow for open access and shared ownership can enable successful implementation of these approaches.
- In designing governance frameworks, it is key that all levels of government, from national ministries to local authorities, collaborate with relevant stakeholders, including in the business community, the private sector, civil society, local communities and development partners. Cross-sectoral partnerships are key to ensure that governance frameworks deliver in practice.

4. See presentation by Ms Beatriz Ebil (Universidad Nacional de Misiones Argentina) held at TEM-M session IV "Nature-based solutions to integrate energy and water aspects into the agri-food chain" on 21 June 2019, available at <https://unfccc.int/sites/default/files/resource/EiblBonn19.pdf>.

5. See presentation by Ms Maria Weitz (GIZ) held at TEM-M session VI "Replicating and upscaling innovative solutions for securing clean energy and water access for the agri-food chain" held on 21 June 2019, available at <https://unfccc.int/sites/default/files/resource/PPT%20Maria%20Weitz%20GIZ.pdf>.



Building confidence among end-users and enabling uptake

- Industry, public institutions and development partners can work to build confidence in new technologies and practices by demonstrating options and explaining associated co-benefits, such as increased efficiencies, lower costs and higher levels of reliability. Hands-on guidance and demonstration are needed to show farmers and producers how innovations can be incorporated into their daily practices, as well as to build their capacity for implementation.
- To build confidence among end-users, industry and manufacturers must ensure that the quality and reliability of technological solutions are guaranteed

in the contexts where solutions are being deployed. To do so, adequate testing and piloting schemes are essential. International standards need to be developed for new technologies to provide a reference point for minimum performance and quality.

Setting up appropriate support infrastructures

- It is key that industry supports end-users by developing servicing and maintenance infrastructures for new technologies. In addition, industry and business associations must ensure that technicians, auditors and decision-makers receive adequate training regarding new technologies and practices.

3

ADAPTATION FINANCE

CHALLENGES

The adaptation finance gap is significant. Looking ahead, this gap is projected to increase unless new and additional finance is mobilized and enhanced mitigation reduces the need for further adaptation measures. A major challenge to scaling-up adaptation finance flows is the inherent complexity of the issue. Lack of transparency, particularly for domestic and private sector finance, means that public and private actors are unable to identify what financing is already available and therefore which financial products are best suited to which types of adaptation projects and at what level. The Stockholm Environment Institute is developing a public data platform to enable better access to information on climate adaptation finance flows.⁶ In addition, adaptation frameworks are generally developed on a country-by-country basis. As a result, transboundary climate risks are overlooked in both adaptation planning and financing.

Under these conditions, it is especially challenging to engage the private sector in financing adaptation action. Many companies currently lack the awareness and knowledge base for developing the business case for adaptation action. This is already visible in emerging dialogues between adaptation policymakers and practitioners and the business community. Companies are often unfamiliar with terminology specific to the adaptation context, which can prevent proactive engagement in adaptation action and finance. This lack of knowledge prevents uptake and development.

SOLUTIONS

All actors across the financial system can contribute to making greater levels of adaptation finance available. Multilateral climate funds can simplify and streamline their processes for accessing adaptation finance. It is key that these funds continue to work with one another and with recipient countries to ensure that synergies between funds are maximized and that there

is complementarity between the funding offerings and finance needs. One example could be the development of calls for joint project proposals that would allow countries to collaborate on transboundary climate risks of mutual concern. Multi-jurisdiction collaboration can significantly increase the effectiveness and efficiency of adaptation interventions, specifically those that address transboundary and regional climate risks.

Banks can introduce structures that incentivize adaptation action. For example, some banks already include sustainability Key Performance Indicators (KPIs) in loan agreements (for example, KPIs relating to borrowers' emissions data), lowering interest rates for companies that fulfil these KPIs while raising or maintaining rates for those that fail to fulfil them. With adequate availability of data, this approach could be extended from the mitigation to the adaptation context. In addition, working with corporations to integrate climate risks into their existing enterprise risk management systems can be an effective way to engage the private sector in investing in adaptation for their own businesses and the communities in which they operate.

Importantly, in developing the business case for investing in adaptation action it is important to put vulnerable communities at centre stage. Experience from capacity-building programmes across Asia and Africa demonstrates that increasing civil society understanding of policy processes (such as application modalities to access multilateral climate funds) has real benefits in enabling the local level to actively participate in national and regional adaptation planning. Given the considerable overlaps between adaptation and sustainable development action, there is potential to explore linkages between the Paris Agreement and the Addis Ababa Action Agenda on financing for development, as well as other action agendas, including the Sustainable Development Goals.

6. See Stockholm Environment Institute, "New online tool to visualize development finance flows" (June 2019), <https://www.sei.org/featured/tool-to-visualize-development-finance/>.

RECOMMENDATIONS

Catalyzing adaptation finance

- To catalyze adaptation finance at scale, governments need to align domestic expenditure and budgetary plans with climate action. In so doing, it is key that governments develop and implement holistic, robust and iterative national adaptation planning processes and set guidelines and regulations that incentivize adaptation investment.
- The process of formulating and implementing National Adaptation Plans (NAPs) in particular offers the opportunity to identify and make use of suitable sources of finance, develop project proposals and create overarching financing strategies to support adaptation.
- Multilateral climate funds play a crucial role in channelling finance from multilateral pools to developing countries, building capacity and enhancing readiness for finance, and promoting synergies and coherence in the fragmented adaptation finance landscape. However, the impact of international finance will be limited unless it is accompanied by additional public and private resources. Supporting multilateral finance with domestic expenditure can help advance government priorities and meet adaptation needs.

Incentivizing private sector investment in adaptation

- The public sector plays an important role in unlocking and scaling up private sector adaptation finance. Public guarantees and financial incentives can de-risk adaptation investments and provide incentives to ensure finance is flowing in the appropriate spaces.
- Governments can also impose requirements for the private sector to invest in adaptation efforts relevant to their businesses. This could include, for example, using laws and regulations to ensure that sectors invest in adaptation efforts for the ecosystems and communities on which their businesses depend.

Commercializing adaptation technologies

- Developing countries need to ensure that Technology Needs Assessments and Technology Action Plans are complete and up to date. These processes enable countries to identify adequate solutions and develop concise plans for uptake and dissemination with adequate support.
- Innovative financing mechanisms, coupled with awareness-raising, can help expand existing private sector investment during the commercialization phase of adaptation solutions.

Building trust and increasing transparency for optimal use of available finance

- Civil society organizations, governments and local-level actors can help increase the transparency of adaptation finance by improving the understanding and assessment of results. This would help build trust among the communities to which the finance is directed and ensure that investments are used efficiently and effectively to achieve greater adaptation outcomes with the limited finance available.
- Understanding how adaptation investments enhance adaptation action is crucial. At the level of projects, programmes or portfolios, opportunities to enhance this understanding include investing in monitoring, evaluation and learning throughout the full project or programme life cycle and requiring projects to go beyond output indicators and move towards programmatic approaches to adaptation. At the national or international level, this includes developing useful national adaptation monitoring and evaluation systems and linking national monitoring of progress on adaptation with monitoring related to international frameworks.



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