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Technology foresight and technology assessment for sustainable development

Statement by

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ROUND TABLE

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Agenda item 3. Science and technology for development Priority theme:
(b) Technology foresight and technology assessment for sustainable development

Reinforcing scientific methodology is crucial in technology foresight and assessment, with modeling helping predict technological impacts. In an era of misinformation, evidence-based actions are essential to prevent widening gaps between developed and developing nations. Developing countries should prioritize participatory foresight, local knowledge, and capacity-building, while developed nations should focus on ethical AI, the circular economy, and global collaboration. Strengthening international cooperation, interdisciplinary research, and inclusive policymaking will enhance these methodologies, fostering equitable and sustainable technological progress.

Coming from a middle-income country, my recommendations are shaped by our specific needs. First, investing in institutional capacity is crucial. Guatemala is a diverse country, and inclusive participation must go beyond top-down strategies—it requires giving voice and meaningful engagement to local communities and indigenous groups to ensure that technology assessment reflects diverse perspectives.

We recognize the responsible use of Artificial Intelligence and big data as essential tools for scenario modeling and decision-making, helping to bridge gaps and reduce inequities in technology access and participation. Equally important is improving digital infrastructure to support broader inclusion.

There remains a disconnect between the private sector and academia, making it vital to foster stronger public-private-academic partnerships. Ensuring policy coherence with national development goals, sustainability targets, and industrial strategies is also essential for long-term progress.
Finally, I strongly believe in the power of regional collaboration. Sharing resources, knowledge, and best practices with neighboring countries —who face similar challenges and share common values— can be an effective strategy for sustainable and inclusive development.

Governance structures

To effectively integrate Technology Assessment (TA) and Technology Foresight (TF), strong and well-defined governance structures are essential at every level.

At the national level, countries like Guatemala need to establish foresight agencies if they do not already exist. TA must be integrated into policymaking, and collaboration between the public, private sectors, and academia should be fostered. Ideally, a public agency focused on future-oriented research, sustainable innovations, and technology foresight would shape national development strategies. Involving all sectors can have a positive long-term impact on driving national innovation policies.

At the regional level, cooperative platforms for knowledge exchange, joint research, and harmonized policies are critical. In Central America, for example, we are integrating efforts around the Open Science, Technology, and Innovation Policy, which serves as an example of regional exchange and governance.

At the global level, it's important to strengthen international frameworks, promote technology transfer, and enhance coordination through multilateral institutions. The United Nations Commission on Science and Technology for Development (CSTD) and UNESCO are key examples of global organizations that facilitate cooperation and promote technology transfer, helping strengthen global governance for sustainable development.

To harness TA/TF activities for sustainable development in developing countries, strategies should include building local capacity through training programs, workshops, courses, and short-term activities that reinforce learning. Ensuring inclusive participation is key, with TA and TF activities tailored to local socio-economic, cultural, and environmental contexts, increasing the likelihood of successful technology adoption and long-term sustainability. Promoting technology transfer, aligning activities with national development goals, fostering public-private-academic partnerships, utilizing open data and digital tools, and encouraging regional collaboration are also critical. These strategies will ensure that technological solutions are relevant, inclusive, and sustainable.
International cooperation and CSTD can support countries in harnessing TA and TF by providing technical assistance, facilitating knowledge exchange, promoting technology transfer, encouraging collaborative research, advocating for policy alignment with SDGs, and building multilateral networks for continuous dialogue and cooperation on emerging technologies.