Technology Assessment in times of eroding planetary boundaries – crucial, complex, challenging, … and exciting

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Challenges for TA in developing countries

- Many technologies are complex and science-based (e.g. AI or gene editing).

  + Sustainability innovations require a fast roll-out to to prevent the planetary boundaries from being crossed (CCUS).
- Developing countries must empower their stakeholders to actively promote the assessment of relevant technologies, including to define the TA agendas and priorities. Expecting knowledge transfer from the North to the South is not a recommendable solution.
- Considering the **complexity** and **urgency** of technological change, the TA process must be governed as efficiently as possible. It might be good to institutionalize TA within the national innovation systems, perhaps even on regional levels (SADC, Mercosur).
- Participation by various stakeholder groups can help setting agendas and priorities and raising awareness about (emerging) technologies. It should be governed in a way that it does not run counter to the goal of an efficient procedure.

Lessons from the UNCTAD Pilot on TA

- It was possible to draft three reports on TA in technology fields relevant for an economic, environmentally and socially sustainable development.
- The project provides a series of important lessons for the implementation of TA in the development context. It was meant as a pilot project and, thus, these **lessons** should be counted as **successful**
- What are some of these lessons?

<u>On the more general level:</u>

- The nature and objectives of TA (“what, why and when”) have to be well communicated to all stakeholders involved
- TA projects needs to be supported by sufficient resources to cover the needs of knowledge development and communication, e.g. national and sometimes international meetings of the core expert group, plus support for the expert group
- The participation by various stakeholder groups is important but not a “sure-fire success”. Confidence has to be built up that investing time and effort is worth the time and effort.

Lessons from the UNCTAD Pilot on TA

On a more specific level:

- The governance of the TA project was well thought out, but did not work out as expacted, we refer specifically to having two separate bodies, a steering committee and an expert group. As TA is not (yet) an established concept, the roles in the project were not sufficiently clear and the incentives not sufficient to incentive the participation of individuals in both bodies.
- National experts, knowledgeable in topics like innovation, STI, hydrogen, Agri-PV or biogas have often attractive opportunities to invest their time and efforts for projects with national or international private companies and organizations, our project could not offer competing opportunities.
- The timing of some of the steps in the TA project took too long, especially in the early phase, like steps 2 (priority-setting) and step 3 (framing project questions). The criteria for the priority setting have to be made very clear at the beginning of the process to avoid unnecsesarily lengthy discussions.

Timing took too long

Some additional thoughts

- TA at the level of single states comes soon to a limit, more so when we talk about countries without a well-developed innovation system.
- Many challenges are the same for countries in their respective world region, e.g. East Africa, West Africa, South or Central America.
- It would make sense to bundle STI and TA capacities to create TA Capacities in these regions, e.g. MERCOSUR or SADC.
- It may make sense to advocate (e.g. by UNTAD) for international cooperation to strengthen TA capacities in the Global South.

Thank you!

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The role of technology in the development context and related challenges

Technologies are crucial to allow socio-economic progress while keeping development within the planetary boundaries (currently: low-emission hydrogen)

Challenges for technological development in the in the 2020s:

- Technologies are increasingly complex and often science-based
- Technological change is fast and pervasive
- Sustainability innovations have to be developed, adapted and/or rolled out with urgency
- Technologies are increasingly embedded in industrial policies, international competition and geo-politics, interests and value systems related to technologies differ between different world regions and countries
- Developing countries need to build up own capacities for technology assessment, as other countries might have other priorities and sometimes interests.