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Presentation of the new STI Policy Review Framework

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Reflections on the new UNCTAD STI Policy Review Framework – need about 1500 words

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(check against delivery)

It's my pleasure and an honour to participate in this session on the new STIP review framework and provide brief reflections on it. The framework is the outcome of a number of years of collaboration with colleagues at UNCTAD and an international team of academic colleagues. In particular it draws upon work within the ESRC STEPS Centre – Social, Technological and Environmental Pathways to Sustainability - and the Transformative Innovation Policy Consortium (TIPC), both of which involve researchers including myself in SPRU - the Science Policy Research Unit at the University of Sussex in the UK.

I would like to focus my comments on an explanation of what distinguishes the new framework from the earlier approaches that have been successfully applied in fourteen countries and in particular the 2011 version of the framework. These differences reflect the new orientation of the framework towards the transformative challenges of the sustainable development goals. I will explain how the new framework broadens out the notion of innovation beyond conventional actors, how it adopts a more participatory and experimental approach and how it engenders processes of policy learning.

Like the earlier version, the new framework adopts a policy-oriented approach that analyses the national innovation system and offers an opportunity for capacity-building and strategic reflection in the country of review. Reviews provide independent, evidence-based analysis that can guide policy-making to develop science, technology and innovation capabilities and contribute to structural transformation.

The key differences reflect a focus on the 2030 Agenda and a recognition of the broader set of actors, relationships and enabling conditions that are necessary to drive development in more sustainable **directions**, delivering pathways that reconcile socio-economic development with environmental sustainability and the need to leave no-one behind.

Chapter 2 of the framework illustrates this notion of **directionality** – a new emphasis and a significant departure from the earlier 2011 version.

Directionality is illustrated by SDG targets 6.4 (regarding water efficiency), 8.4 and 9.4 (resource efficiency). It is also illustrated by target 7.3 (energy efficiency, measured by primary energy and GDP) – directing innovation towards energy efficiency is an important aspect of our response to climate change.

However, the Intergovernmental Panel on Climate Change last year said that in order to limit warming to the 1.5°C ambition of the 2015 Paris accord, "rapid, far-reaching and unprecedented changes in all aspects of society" would be required to bring us to net zero by 2050. Nothing short of a **transformative approach** is required to deliver upon this requirement – one that goes beyond technology to change socio-technical systems.

A transformative approach requires attention to a broader set of innovation actors, a more comprehensive analysis of enabling conditions including regulations, policy instruments, policy mix and governance conditions. And it also requires a more open and experimental approach to policy making, monitoring, evaluation and learning. Chapter 2 of the framework explains this approach, including the theoretical background and a new transformative model of STI policy for sustainable development.

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In terms of the process of conducting the reviews, this suggests a more participatory approach to identifying objectives, planning and conducting the reviews and following up over the short, medium and long-term. The process is still initiated by a request from a United Nations member state but given the transversal nature of the SDGs it is recommendable that the request reflects the perspectives of relevant ministries and organizations, rather than one line-ministry, and that the design, implementation and follow-up of the STIP Review are discussed at cabinet level prior to launch.

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Following the launch, a participatory research and engagement process is undertaken through a series of field missions and collaborative work led by UNCTAD staff and the national STIP review team. Chapter 3 of the new framework provides an outline of the process of undertaking a STIP Review, including key questions and criteria that may guide the reviews, the potential methodology and the steps involved in the review process.

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The indicative structure of the STIP review report is provided in Chapter 4 of the framework (included in Figure 8).

The first part of the STIP review report – just one of the outputs of the review process –highlights the major issues for the long-term development of the country and related government plans. It identifies key societal challenges in connection with the country's performance relative to SDGs, discusses STI capabilities and maps the national innovation system, more particularly in relation to the identified societal challenges.

This builds upon earlier concepts around national innovation systems that focus on actors, linkages and institutions within a country's borders. Firms, with the ability to commercialise new knowledge, represent key innovation actors within national innovation systems and are central to the new STIP review process. But crucially, the reviews also analyse the role of a range of other actors, in particular:
- Research and education system actors - have the capabilities to learn, absorb and develop new applied knowledge, and to supply human capital to the innovation system in the form of scientists, engineers, medics and other technical professions. Here and throughout the review, applying a gender lens is necessary to address SDG 5.
- Intermediary organizations - have networking and coordinating capabilities, and the capabilities to identify relevant knowledge, as well as to support knowledge transfer, management capabilities.
- Consumers/users - have the capabilities to learn, test and adapt new technologies, altering practices to support or constrain systemic change.
- Civil society and citizens - have the capabilities to challenge non-inclusive and unsustainable practices, form alliances to lobby for change, mobilize and drive innovation, and pioneer solutions through grassroots innovation.
- And last, but not least, government - has the capabilities to mediate innovation priorities, direct public resources into priority areas, support capabilities and connections in the innovation system, remove obstacles to innovation, influence the incentive structure, define and enforce regulations and standards, and attempt to improve framework conditions through public policies.

These roles of government are the focus of the second part of the STIP review report, which moves on to evaluate current policies and explore opportunities

for future action. This includes an analysis of the current framework conditions and enabling environment, using available indicators to assess their performance (see Figure 10). Beyond standard STI policies and indicators, this includes attention to social and grassroots innovation, informal sector activity and trends towards open, digital collaboration. The new framework includes a more comprehensive description of different forms of innovation that may be relevant to the sustainable development goals (see Figure 3).

The new framework also caters for a broader range of policy instruments that attend not only to the *rate* of science, technology and innovation activities but also to the *direction* of innovation. A selection of these are provided in Figure 5, including economic instruments such as subsidies, environmental taxes or emissions trading and approaches such as technology foresight. The second part of the STIP review report also evaluates these different policy instruments and – in particular – the policy mix – for its ability to bring about structural transformations that can deliver on the interlinked objectives of socio-economic development and environmental sustainability.

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Orienting the science, technology and innovation policy reviews towards the sustainable development goals also requires a more flexible and context-sensitive approach. The sustainable development challenges facing countries are radically different, based on historical, socio-economic and environmental conditions, and also on the current state of the national innovation system. The new UNCTAD framework for science, technology and innovation policy reviews takes this context sensitivity seriously. It provides the flexibility for countries to identify their most pressing societal challenges, so that the review process can undertake an in-depth analysis of how science, technology and innovation can best be applied in order to address them.

Part III of the STIP Review report goes into detail on these key societal challenges and lays out proposals that combine elements of the policy mix with pilot initiatives and experiments. These may include participatory processes such as transformation labs or transition arenas that bring together the relevant actors in the innovation system and foster collaboration and interaction around the specific societal challenges identified at the outset of the review. The aim here is to foster policy learning, adaptation and improvement

The Annex to the STIP review report moves beyond these proposals to document a roadmap detailing different science, technology and innovation pathways for transformative change. This summarises priority reforms, experimentation initiatives and expected results and lays out the sequencing of monitoring, evaluation and policy responses over the short, medium and long term, for example to 2030.

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In general the new framework offers a flexible, modular form of STIP reviews that allows United Nations member states to benefit from independent, evidence-based expert advice to guide policy supporting transformative change to address the SDGs. A broader and more participatory approach to defining societal challenges, mapping innovation systems, appraising policies and formulating proposals for action provides countries with the tools and process that they need to transform their STI systems in line with the 2030 Agenda.