STI for SDGs Roadmaps: status and opportunities

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Prepared by DESA on behalf of the technical working group
(DESA, UNESCO, EC/JRC, the World Bank and UNCTAD)

Background

The 2030 Agenda for Sustainable Development recognizes that the world will achieve the SDGs only by mustering the full power of science, technology and innovation. In all regions of the globe, governments and other decision makers must have access to the latest science and evidence, disaggregated data, and technology solutions, as well as to the resources needed to build capacity and foster innovation—and to bring innovations to scale. In the 2015 Addis Ababa Action Agenda and the 2030 Agenda, Member States mandated that the United Nations create a Technology Facilitation Mechanism (TFM) to advance STI for the SDGs.

The fully multi-stakeholder TFM has engaged thousands of scientific and technological stakeholders. Participation in TFM activities has continuously increased and widened, including among policy makers, entrepreneurs, academics and the youth. Through the summary of its STI Forum, the TFM provides formal mandated input in support of the HLPF's SDG review and its mandated science-policy function.

One critical component of the TFM is Science, Technology and Innovation (STI) for SDGs roadmaps, known as STI4SDGs roadmaps. The work aims to exchange views on a common guidance, principles and possible frameworks/ methodologies for countries preparation of STI roadmaps, and support countries to practice this multi-stakeholder engagement tool to envision, plan, communicate and facilitate actions, track progress, and foster a learning environment to harness STI to achieve the SDGs.

The global work on STI4SDGs roadmaps has been launched, and DESA together with the 10 Member Group and the IATT partners is now working to chart the course for the next phase of the work – the PiA.

https://sdgs.un.org/tfm#sti_roadmaps

Professional network and collaboration

DESA has built a network of partners throughout the UN system and beyond, all of whom offer STI resources of varying types and scales including publications, technology resources including blueprints and other design guidance materials, STI-related virtual and in-person (pre-COVID) events, and other resources.

A technical working group is established co-led by DESA, UNESCO, EC/JRC, the World Bank and UNCTAD. The working group has undertaken substantial analytical and operational work on STI roadmaps and action plans for the SDGs. Its members also include UNIDO, UN-ESCAP,

ESCWA, ECA, UNDP, and FAO, among others. Substantial support has been provided by international stakeholders, including the Organization for Economic Co-operation and Development (OECD) and the Government of Japan.

System-wide momentum and achievements

Leaders and organizations across the established network and working mechanism have shown an increasing interest in and commitment to advancing STI4SDGs roadmaps, recognizing that STI partnerships and associated resources are crucial to achieving the objectives of the work. Over the last three years, a number of milestones have been achieved.

The Global Pilot Programme on STI for SDGs Roadmaps

The United Nations Inter-Agency Task Team (IATT) launched the Global Pilot Programme on Science, Technology and Innovation for SDGs Roadmaps in July 2019. The first phase of the Programme included an initial group of five pilot countries. Under this phase, roadmaps are piloted in **Ethiopia, Ghana, India, Kenya, and Serbia**. Most recently, in February 2021, **Ukraine** also joined the Programme bringing the number of pilot countries to six. In addition, both the European Union and Japan joined the Global Pilot Programme to strengthen international partnerships on STI for SDGs roadmaps and in this context, the EC/JRC is supporting the development of the STI for SDGs roadmap in Czech Republic. These pilots are implemented following the guidance of the "Guidebook for the Preparation of STI for SDGs Roadmaps".

On August 17, 2021, UN General Assembly adopted a resolution titled "Impact of Rapid Technological Change on the Achievement of the Sustainable Development Goals and Target". The resolution refers to the Global Pilot Programme on STI for the SDGs Roadmaps to support strategic tools for ensuring policy coherence.

For more information about the programme, please see:
- [Global Pilot Programme on Science, Technology and Innovation for SDGs Roadmaps](#)

The outcomes of these pilots have been used to generate lessons that improved the guidelines. The results of the first pilot phase have been presented at the 6th Multi-stakeholder Forum on Science, Technology and Innovation for the SDGs, New York, 2021.

IATT and the TFM's partners have also prepared the Progress Report of the Global Pilot Programme, which took stock of the state of country pilots, and their national priorities, to draw out lessons and implications from the current implementation and to suggest ideas for the way forward. The Progress Report are available below:
- [Progress Report of the Global Pilot Programme on STI for SDGs Roadmaps 2021](#) (full version)
- [Progress Report (executive summary): the Global Pilot Programme on STI for SDGs Roadmaps](#)
- Interim Report[: the Global Pilot Programme on STI for SDGs Roadmaps, July 2020](#)

To date, more than 20 countries have expressed interest in joining the programme. They will be accepted into the programme as resources to support their participation become available.

Guiding materials for STI4SDG roadmaps

The primary focus of this work is to support the countries and exchange views on a common guidance, principles and possible frameworks/ methodologies for country and international level STI roadmaps for the SDGs. To these ends, the team led by DESA and the World Bank, supported a collective effort by a group of champion countries and through a multi-stakeholder collaborative approach among the UN Inter-agency Task Team, non-UN partners and stakeholders for the development of the Guidebook for the preparation of STI for SDGs roadmaps.

Following over three years' preparation and consultations, the final version of *the Guidebook for the preparation of Science, Technology and Innovation Roadmaps for the SDG*s is available here (En). **The Guidebook** has been translated into official languages of the UN, Arabic, Chinese, French, Russian, Spanish. It has also been translated into Portuguese, and Japanese. The Guidebook is accompanied by two **Background Papers**: **on available STI roadmapping Methodologies** and **International Partnerships**. These background papers serve as key inputs to **the Guidebook**, inform IATT partners' continuous dialogues with national authorities leading roadmap pilots, and prepared grounds for solidifying respective pilot design as well as peer learning.

Based on the Guidebook and country feedback, DESA prepared an "**Operational Note for Implementing STI4SDGs Roadmaps**" to further assist governments in several pilot countries in the development of national STI roadmaps for the SDGs. **A Resource Guide on Artificial Intelligence (AI) Strategies** is also prepared and launched in the last STI Forum in May 2021.

DESA and UNITAR are developing a **Massive Online Open Course (MOOC)** that will be based on the Operational Note. It will be an entry-level course freely available on the TFM website. It is expected that the course will be launched in early 2022. EC/JRC is also about to start developing a MOOC that will build on the resources and experiences collected by the UN/IATT workstream on STI for SDGs roadmaps, such as the Guidebook for the preparation of STI for SDGs roadmaps and the country cases of the Global Pilot programme. The MOOC will benefit also from the expertise of the UN/IATT workstream on Capacity Building.

National STI for SDGS Roadmaps

The following roadmaps are available for showcasing examples and inspiring other countries to join the process.

Ghana
Ethiopia
India
Kenya
Serbia

Major recent meetings for a pathway to the PiA

The demand to further promote the deployment of STI for SDGs roadmaps was triggered by the need to accelerate efforts to close the digital divide and support the digital inclusion of disadvantaged groups especially following the COVID-19 pandemic. The **Partnership in Action** (PiA) will serve as a platform to strengthen the development and implementation of STI for SDGs roadmaps, through the Global Pilot Programme first launched in the 2019 HLPF. Below is an overview of recent major UN meetings in the lead up to the launch of the PiA and the establishment of a multistakeholder Technology Facilitation Mechanism Alliance to support the Partnership in Action of STI for SDGs Roadmaps.

- UN75th GA Side Event on STI for SDGs Roadmaps (Science, Technology and Innovation Roadmaps for SDGs) – achievements and new opportunities, Tuesday 17 Nov 2020. *Co-organized by DESA (on behalf of IATT), EC/JRC, OECD and Japan, this event focused on the preliminary results and the next steps for the finalization of the pilot roadmaps, for more details, see: https://sdgs.un.org/events/un75th-ga-side-event-sti-sdgs-roadmaps-science-technology-and-innovation-roadmaps-sdgs*

- High-Level Side Event on Science, Technology and Innovation (STI) for SDGs Roadmaps at the margins of the 6th Multi-stakeholder Forum on Science, Technology and Innovation for the SDGs, Monday 03 May 2021. *Co-organised by UN-DESA, EC/JRC, UNESCO, FAO and UNIDO, this event focused on raising awareness on the results achieved as part of the Global Pilot Programme on STI for the SDGs Roadmaps and by the pilot countries and scaling up of the Global Pilot Programme, for more details, see: https://sdgs.un.org/events/high-level-side-event-science-technology-and-innovation-sti-sdgs-roadmaps-33020*

- High-level Dialogue on the Partnership in Action on Science, Technology and Innovation for SDGs Roadmaps, during the High-level Political Forum on sustainable development (HLPF), Friday 09 Jul 2021. *Co-organized by Ghana, Japan, UN-DESA, European Commission's Joint Research Centre, UNESCO, and UNECA, the event aimed at discussing the path forward for the Partnership in Action, following the successful inception of the Global Pilot Programme on Science, Technology, and Innovation (STI) for the SDGs roadmaps. On this occasion, the representatives from Ghana and Serbia expressed their interest to co-lead the group supporting the Partnership. For more details, see: https://sdgs.un.org/events/high-level-dialogue-partnership-action-science-technology-and-innovation-sdgs-roadmaps-33359*

In this context, Ghana and Serbia expressed the interest to co-lead the alliance to support the Partnership in Action on STI for SDGs roadmaps.

Other awareness-raising and capacity building activities

Additional activities and events are being organized to raise awareness on the advancements and achievements in the development of the STI for SDGs roadmaps and respective methodologies.

- **Innovation Pilot Programme in Ghana**, hosted by UNDESA in partnership with Research for Development (R4D): UNDESA in partnership with the Research for Development (R4D) hosts an annual Innovator Competition to recognize innovators from across the globe who are driving transformative change to support the SDGs in their local communities. Building on this body of work, this team is now initiating a pilot programme in Ghana to convene burgeoning local innovators, subject matter experts, innovation accelerators, policy makers, and other innovation stakeholders for a series of workshops designed to provide innovators with technical assistance to enhance and expand their work in accelerating the progress of the SDGs. A demand-driven process, the project began with a series of consultations with the innovators to discuss what types of support and training would be beneficial for them. This project will additionally include an innovation ecosystem analysis to identify key opportunities and obstacles for innovators based on a literature review, as well as interviews with key stakeholders. The pilot programme will build on STI4SDGs Roadmaps and contribute directly to the Technology Facilitation Mechanism online platform, 2030 Connect, a dynamic tool for entrepreneurs, innovators, students and leaders from around the world seeking to exchange ideas and technology to advance the Sustainable Development Goals (SDGs).

- Coordinate the inputs from the SG's **10 Member Group for the TFM**, plan meetings and prepare in-depth analytical inputs/guidance materials in the lead-up the 2022 STI Forum.

- **United Nations – MoST Joint [Capacity Building Workshop](#) on Science, Technology and Innovation for Sustainable Development Goals**, 9 Dec 2019 - 17 Dec 2019, Guilin, China: To improve the innovation capacities of a range of stakeholders, especially in the lease developed countries (LDCs) and selected middle income developing countries (MICs), and key partners for international partnerships, UN DESA (Department of Economic and Social Affairs) with the support of the 2030 Agenda Sub-Fund of the UN Peace and Development Trust Fund contributed by the Government of China, together with the Ministry of Science and Technology of China (MoST) and ESCAP prepared a STI workshop, in Guilin, Guangxi Province in December 2019. Meeting report is available at [here](#).

- **[Workshop](#) on Science, Technology and Innovation for the SDGs**, 27 Feb 2019 - 1 Mar 2019, Bangkok, Thailand: The objective of the meeting was to prepare for the STI Forum 2019 by mobilizing all stakeholders to share insights on science, technology and innovation for SDGs 4, 8, 10, 13, and 16, including specific solutions and achievements, state of the art expertise on specific issues and practice areas, emerging issues, critical knowledge and innovation gaps, as well as their views on how to better mobilize science, and technology communities to address these gaps.

- **Implementation of the STI for SDGs Roadmap in Ghana**. UNESCO is continuously committed to supporting the implementation of Ghana's Roadmap through the project "Strengthening STI Systems for Sustainable Development in Africa", sponsored by Swedish International Development Agency (SIDA). The project was designed to strengthen institutional and human capacities for monitoring and implementation of the 2017 Recommendation on Science and Scientific Researchers (RSSR) and Ghana has

been included in the list of the six beneficiary countries for this new project, with CSIR-STEPRI as the STI institution to collaborate with in country and in West Africa. The project aims at ensuring UNESCO's effective delivery of advice, technical assistance and capacity-building in STI for SDGs in Ghana. A Consultative group convened by CSIR-STEPRI was formed to support the project. CSIR-STEPRI has submitted the baseline report on the implementation of the RSSR and the STI ecosystem report, providing the empirical basis for subsequent project activities including the assessment of capacities and advocacy for STI policy. As part of the UNESCO-SIDA project, Ghana will conduct a systematic needs assessment of the STI system, policies, legal framework and instruments using UNESCO GO-SPIN methodology. A training workshop is envisaged to take place from 13 to 15 December.

- **Ghana's Ministry of Environment, Science, Technology and Innovation (MESTI) Visibility Webinar Series on STI4SDGs Roadmap**: Strengthening the STI Ecosystem in Ghana. MESTI has organized a webinar on 28 Oct 2021 on STI for SDGs Roadmap and has presented the key results of the Roadmap during the webinar. For more details, please see: https://mesti.gov.gh/mesti-visibility-webinar-series-2/

- **Presentation of the STI for SDGs Roadmap in Ghana during the World Science Day for Peace and Development**. The UNESCO office in Accra, in collaboration with the Ministry of Environment, Science, Technology, and Innovation (MESTI) and the CSIR-Science and Technology Policy Research Institute (CSIR-STEPRI), hosted a public engagement session to outline how Ghana's STI policy developments can advance the green agenda toward building a climate-ready nation. A presentation was made on Ghana's STI for SDGs Roadmap to demonstrate the significance of STI in achieving the SDGs. Fore more details, see https://www.myjoyonline.com/historic-world-science-day-for-peace-and-development-celebrated-in-ghana/

- **Brainstorming workshop for the countries and regions interested to apply Smart Specialisation (S3) for SDGs methodology**, Wednesday 21 July 2021. Organized by EC/JRC, the event aimed at presenting the state of play of STI for SDGs roadmaps development in the Czech Republic, Serbia and Ukraine, as well as to brainstorm ideas and needs for STI for SDGs roadmaps development in other interested countries and regions (Poland, Tunisia, Aragon and Basque Country in Spain). The event was attended by 38 invited participants. For more details, see: https://s3platform.jrc.ec.europa.eu/en/w/brainstorming-workshop-for-the-countries-and-regions-interested-to-apply-s3-for-sdgs-methodology

- **Smart Specialisation for Sustainable Development Goals - e-Talks webinar series, ongoing until 20 January 2022**. Organized by EC/JRC, the series of six e-Talks aims at discussing the theoretical background as well as the methodological and practical applications of including the sustainability dimension in the traditional S3 concept. One e-Talk will be specifically dedicated to the STI for SDGs Roadmap developed in Serbia based on S3 methodology. On average, the online events are attended by 150 participants. For the full calendar and more details, see: https://s3platform.jrc.ec.europa.eu/en-US/w/smart-specialisation-for-sustainable-development-goals-e-talks-webinar-series

- **Methodological support to the implementation of Smart Specialisation in Latin America, from 28 October 2021 to 26 November 2021**. Organized by EC/JRC, the series of five webinars is aimed at strengthening skills and capacity that may be useful in the implementation phase Smart Specialisation Strategies. The session on 23 November is entirely dedicated to discussing how SDGs are present and can be further integrated in STI policies. The first webinar was attended by 46 participants. For more details, see: https://s3platform.jrc.ec.europa.eu/en/w/seminar-methodological-support-to-the-implementation-of-smart-specialisation-in-latin-america

Annex I: Recent Resolutions

GA Resolution on "Impact of rapid technological change on the achievement of the Sustainable Development Goals and targets", A/RES/75/316
https://undocs.org/en/A/RES/75/316
PP7, OP1, OP17.

GA Resolution on "Science, technology and innovation for sustainable development", A/RES/76/213, https://undocs.org/en/A/RES/76/213
PP35, PP37, OP10, OP27, OP28, OP30.

Annex II: IATT Policy Briefs on STI4SDGs Roadmaps

Policy Brief #1 Science, Technology and Innovation for the SDGs Roadmaps – Framework and Working Method
Policy Brief #2 Assessment of STI capabilities to meet prioritized SDGs
Policy Brief #3 Assessment of Human Capital Needs for STI R&D and Other STI Skills
Policy Brief #4 Harnessing Ghana youth innovation potential for the SDGs

Annex III: Online Training Module: Massive Online Open Course (MOOC)

1) DESA and UNITAR – (Level I) – course development completed in Feb. 2022.
2) EC/JRC – (Level II) – course development to be completed in 2022

Annex IV: Technical Guides/background materials under development

- STI Roadmap on Establishment of a Bank of Ideas and a Fund for Innovation to induce Ecosystems for Innovation towards achieving the SDGs
- STI Roadmap on Green Design/Technologies, Carbon Neutrality