

**Eighth annual Multi-stakeholder Forum on Science, Technology and Innovation  
for the Sustainable Development Goals**

**Session 5: Global research cooperation and funding - sharing knowledge  
through new partnerships**

**(11:45-13:00 EDT, 4 May 2023; in-person, Trusteeship Council Chamber)**

**Background**

*Global Research Cooperation and Funding*

Achieving the Sustainable Development Goals (SDGs) by 2030 requires extensive research and development (R&D) efforts to address complex global challenges, such as poverty, inequality, climate change, and pandemics. Although global R&D spending has been increasing, reaching approximately US\$2.5 trillion from all sources in 2022, investment remains concentrated in developed countries, with limited resources allocated to the Global South. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), high-income countries account for 77% of global R&D expenditure, while low-income countries represent only 0.3%.

Furthermore, research collaboration and knowledge sharing are crucial for fostering innovation, leveraging expertise and maximizing the impact of R&D investments. International scientific co-authorship has grown steadily, with more than 20% of research articles published in 2019 involving authors from different countries. However, disparities persist, with researchers from developed countries being more likely to engage in international collaborations than their counterparts in developing countries.

*Research funding for the SDGs*

There is no fully reliable, comprehensive global dataset tracking R&D commitments specifically for the SDGs, but sources like UNESCO and WIPO offer important insights into overall R&D investments and priorities for both developed and developing countries. In general, SDGs related to health, climate change, and energy tend to receive more R&D investments. For example, investments in health research (SDG 3) are substantial, driven by both public and private sectors. The Global Health R&D Observatory reported that global health R&D funding reached \$40.8 billion in 2019, with the United States being the largest donor, contributing 42% of total funding. As of 2022, there were 59 times more health researchers in high-income countries than in low-income countries, and a mere 0.2% of research grants were awarded to low-income countries by major international funders of health research. In fact, only less than 0.5% of health products were for WHO neglected tropical diseases. Climate change (SDG 13) and clean energy (SDG 7) have also attracted significant R&D investments. The International Energy Agency (IEA) reported that *public* energy R&D investments in IEA member countries reached US\$24 billion in 2021, with low-carbon energy technologies accounting for the vast majority of the total.

There may be differences in the priorities of research funders in developed and developing countries. Developed countries, which account for the majority of global R&D investments, tend to prioritize areas such as health, information and communication technologies, and clean energy. Developing countries may prioritize areas more closely related to their specific development needs, such as agriculture, water, and sanitation.

The biggest R&D donors vary depending on the sector and the SDGs being considered. However, some of the largest R&D investors globally include the United States, China, Japan, and the European Union. They contribute a significant portion of global R&D funding across various sectors, including those related to the SDGs.

It is essential to note that these numbers are not exclusive to the SDGs and provide a broader perspective on R&D investments. Tracking R&D commitments and investments specifically for the SDGs remains a complex task, as research and innovation often span across multiple goals and targets.

#### *Public and Private R&D Funding*

Both public and private sectors play a vital role in financing R&D for the SDGs. Public R&D funding, typically provided by governments and international organizations, is essential for supporting basic research, capacity building, and projects with high social and environmental impact but lower financial returns. The Organisation for Economic Co-operation and Development (OECD) estimates that public R&D expenditure in its member countries reached 0.65% of GDP in 2019. Current governmental R&D funding amounts to about US\$200-300 billion per year.

Private R&D funding, predominantly driven by the business sector, is crucial for translating research findings into marketable products and services. The private sector accounts for approximately two-thirds of global R&D spending, with significant investments in fields such as information and communication technologies, biotechnology, and clean energy. However, private R&D funding is often concentrated in areas with higher commercial potential, potentially overlooking research areas with broader societal benefits.

#### **Objectives**

This session aims to: (a) assess the current state of global research cooperation and funding, with a focus on the Global South and the achievement of the SDGs; (b) showcase specific cases of R&D cooperation and funding, highlighting the role of international and interdisciplinary collaborations in addressing global challenges; (c) facilitate a conversation among key R&D funders and actors from public and private sectors, exploring best practices and new ideas for knowledge sharing, funding system improvement, and partnership building; and (d) identify high-impact actions based on lessons learned, promoting more effective and inclusive R&D collaboration and funding mechanisms for the SDGs.

#### **Format**

The session will be structured as a panel discussion, featuring representatives from key R&D funders, researchers, policymakers, and other R&D stakeholders. The panel will provide a global overview of the current state of global research cooperation and funding, focusing on the Global South and the SDGs, as well as draw on case studies and best practices of R&D cooperation and funding, illustrating the

importance of international and interdisciplinary collaborations and discussing best practices for R&D partnerships and funding systems.

Lead discussants will add their own experience and comment on the panel discussion. This will be followed by an open Q&A session in which the audience will have the opportunity to ask questions and contribute to the discussion.

### Guiding questions

The discussion will be guided by a series of questions:

- How can global research cooperation and funding be strengthened to better support the achievement of the SDGs, particularly in the Global South?
- What are the most effective models of R&D cooperation and funding, and how can they be replicated and scaled up to address the "polycrisis" and advance the SDGs?
- How can public and private R&D funders collaborate more effectively to ensure that investments are aligned with the SDGs and contribute to sustainable development?
- What role can international organizations, such as the United Nations, play in promoting knowledge?
- What are your most important recommendations for policy action and high-impact initiatives to be considered at the SDG Summit in 2023 and the Futures Summit in 2024?

### Supporting documents/publications

UNESCO (2021). UNESCO Science Report: The race against time for smarter development, <https://www.unesco.org/reports/science/2021/en/report-series>

[SDG Research Mapping Initiative](#) (University of Southern Denmark, Aurora / Vrije Universiteit Amsterdam, University of Auckland, and Elsevier)

The following *science-policy briefs* have been prepared by TFM stakeholders on emerging science and technologies (will also be made available here: <https://sdgs.un.org/tfm/STIForum2023>):

- *Steering science, technology and innovation towards the Sustainable Development Goals*, by Tommaso Ciarli (UNU-MERIT, and SPRU, University of Sussex Business School), PDF
- *Science shift to supporting the SDGs*, by Alexander Dill (Basel Institute of Commons and Economics, Switzerland), PDF
- *Science in Latin America: towards public policy proposals focused on the development of international scientific cooperation*, by Luisa F. Echeverría-King, Corporación Universitaria del Caribe, Colombia, Olisney De Luque-Montaño, Universidad de La Guajira, and Carmen L. Maya-Pacheco, Universidad de La Guajira, Colombia
- *Avenues for using Science for Smarter Development*, by Susan Schneegans and Tiffany Straza (UNESCO), [PDF](#)
- Victorien Dognon et al, Improving the Quality of Biological Diagnostics for Better Control of Antimicrobial Resistance, Bloodstream Infections and Pandemics in Benin: A Policy Brief, University of Abomey-Calavi, Benin

- Maluta Mufamadi, Harnessing the power of nanotechnology to achieve the Sustainable Development Goals in South Africa and beyond, Nelson Mandela University, South Africa
- Karen Mulberry, Emerging Technology, Standards and Sustainability, IEEE Standards Association, United States
- Eluemuno Blyden et al, The Mother of Birds Initiative: Building biopharmaceutical sectors from the ground up with enabling technologies and local resources, Avril Biopharma Inc, United States
- Salome M. Guchu et al, Leveraging on Emerging Technologies Landscape to Bolster Kenya's Innovation Ecosystem, Inter-University Council for East Africa
- Kaveesha Wijesinghe, Accessibility of life saving biotherapeutics is still a dream for citizens in low- and middle-income countries (LMIC), University of Colombo, Sri Lanka
- Patricia Agupusi et al., The Importance of 'Ordinary' Science, Technology, and Innovation and the Science-Policy Interface in sub-Saharan Africa, Worcester Polytechnic Institute, United States
- Jonathan Andre Morales Marroquín et al., Biodiversity and Environmental policy challenges in Central America towards natural resource governance, University of Campinas, Brazil
- Crystal H. Brown, Sustainable Solutions for Climate Change Adaptation in Africa: Combining Indigenous Knowledge and Modern Technology, Worcester Polytechnic Institute, United States
- Dario Gabriel Codner et al., Mapeo de instrumentos de promoción de la transferencia de tecnología y el desarrollo de negocios tecnológicos, Universidad Nacional de Quilmes and Instituto Universitario para el Desarrollo Productivo y Tecnológico Empresarial de la Argentina, Argentina
- William Kelly, Tech Ethics for Sustainable Development, WFEO, United States
- Cristina Uriarte Toledo, Strengthening SDG dimension in Science, Technology and Innovation policies: The case of the Basque Country, Basque Regional Government, Spain
- Cintia Hernandez, Promoción de la innovación mediante acciones de co-desarrollo en Argentina, Ministry of Economy, Argentina
- Nina Jamal et al, One Health, breaking institutional siloes and achieving health for all, FOUR PAWS International, Austria
- Felipe de Andrade et al., Roadmap for a Role for Intellectual Property Offices in the Governance of Green Innovation, University of Antwerp/KU Leuven, Belgium
- Alex Tveit et al., Tech Stewardship as a foundation for Multi-Stakeholder Collaboration (MSC) to enable STI4SDGs, Engineering Change Lab, Canada
- Myra Cheng et al., Working towards the SDGs through Research Infrastructure: Projects, Program and a Perspective on the Brno Declaration from Australia, Australian Research Data Commons, Australia
- Vanina Saraullo, Enfermedades infecciosas zoonóticas: Importancia de la notificación de casos positivos en animales, Instituto Nacional de Tecnología Agropecuaria, Argentina
- Carolina Rojas et al, Mobilizing and equipping the technical workforce for the SDGs through platforms for interdisciplinary and multi-stakeholder collaboration, Engineering for Change, Panama
- William Kelly, Tech Standards for Sustainable Development, WFEO, United States