

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

### ***Roundtable 3: Science and technology futures and scenarios for the SDGs and beyond: what is possible and what does it take?***

**(14:10-14:55 EDT, 6 May 2022; fully virtual)**

#### **Background**

Ever since the Rio+20 Conference in 2012, many scenario modelers have developed global sustainable development scenarios. Since 2015, they have also developed more specifically SDG scenarios emphasizing economic, technological, or political approaches. However, in the past eight years, unabated global increases in energy, materials and land use, together with their associated environmental, social and health consequences, have required analysts to make ever more ambitious assumptions to arrive at scenarios where the SDGs are achieved in the remaining fewer and fewer years.

Recent sustainable development scenarios show pathways towards ensuring decent living standards for all. The concept of decent living standards goes well beyond basic services and eradication of poverty. It addresses nutrition (food, preparation and conservation), shelter (housing, thermal comfort), health (health care, water and sanitation), socialization (education, communication and information), and mobility (motorized transport). Less than one third of the current global average annual final energy consumption per capita is needed to provide decent living standards. The largest per capita gaps are in Sub-Saharan Africa, South Asia and Latin America, but regional differences are sizable

Energy gaps to ensure decent living are biggest in terms of transport across regions, but there are also sizable gaps in clean cooking cold storage, sanitation and cooling. The cooling gap is especially large in South Asia. In many parts of the Global South, cooling is among the fastest growing energy use in buildings, yet only rarely the focus of sustainability. Heat stress affects health and productivity of billions of people.

Without a successful rapid global sustainable energy transition, most of the other SDG ambitions will also remain out of reach. Clean energy solutions also have the potential to deliver universal energy access in a way that is safe and powers economic development for everyone

Despite continued unsustainable trends, recent sustainable development scenarios show that the SDGs and our climate targets are still within reach. We can still ensure decent living standards for all, including in developing countries. We can halve malnourishment by 2030, achieve zero hunger by 2050, reduce extreme poverty to 180 million people by 2050 and ensure rapid income growth in developing countries. For this to happen, we need to adopt the right policies as well as step up investments, research and sharing of technology with sustainable development as our ultimate objective. Effective governance and institutions are critical as is peace, international cooperation and solidarity. The energy transition is a powerful enabler for realizing all these advances, and the SDGs. In all areas, there is need for political will, focus, continuing research and development, and international cooperation and solidarity.

The roundtable may also want to reflect on what may be perceived as possible by experts and the public alike vs. what could be actually possible through new scientific findings and yet to be invented and tested technologies. After all, science and technology play a large role in helping us understand our world and what is possible in it. This is also why it is important to involve a broad, multi-stakeholder group in developing visions and scenarios for the future. New insights from complexity science and systems thinking may shed light on the interrelations among the STI Forum's targeted SDGs, including on education, gender equality, ocean and terrestrial ecosystems and partnerships. How do we see ourselves as integral part of the whole ecosystems? How do we place our science and technology in service of the larger good? Can we be quieter in the oceans? Can we use less of the on-land habitat? How can science and technology foster greater equality?

Science and technology have led us to new understandings of how our world functions and could be made to function, but it has also had adverse consequences. Science and technology in and of themselves are not virtuous or viscous pursuits. The suitability of scientific and technological processes and outcomes for helping us meet the SDGs will largely rely on the intentions, ambitions, and integrity of all nations, companies, and publics who engage in them. Underlying the whole discussion is acknowledgement that our perception of what is possible in what time frame is informed by the implicit and explicit futures we imagine. The roundtable might ask, what can we imagine differently when we air these futures and actively question and inflect the assumptions within them. A hoped-for outcome will be encounters with novel futures which help us see our world and these issues anew.

### **Objectives**

The roundtable will take stock of recent findings by leading scenario analysts from science and technology futures and scenarios. It looks at which goals are possible to achieve and what would it take in terms of policies and actions to achieve them.

### **Format**

The roundtable will be structured as a moderated panel discussion (5 minutes per panelist), followed by shorter statements by discussants. Thereafter, the moderator will take comments and questions from the audience during an interactive discussion. The moderator will close the roundtable with a brief presentation of main outcomes of the discussion.

### **Guiding questions**

The discussion will be guided by the following questions:

- What have we learned from sustainable development scenarios in recent years? What goals are possible to achieve, and what would it take?
- What are key findings from technology scenarios, including in terms of the role of emerging frontier technologies?
- What can we learn from decent living standards in these scenarios? What is needed for a good life for all and how can it be delivered within the planetary boundaries? What are implications for inequalities and multi-dimensional poverty.
- Which policy choices could help resolving difficult trade-offs and choices between SDG achievements?
- What can we learn from new insights from complexity science and systems thinking?

- What can we learn from recent developments in the private sector in terms feasible science and technology futures? What are the most desirable futures?
- How could or should science and technology differ in 2030 and 2050, compared to today? Do scenarios take such future differences into account?

### **Supporting documents/publications**

The following science-policy briefs have been prepared by TFM stakeholders in support of this session (see also <https://sdgs.un.org/tfm/STIForum2022> and IATT report 2022).

- *Role of Hydrogen in Attaining Carbon Neutrality - Reality check and rationale for considering hydrogen technologies*, by Iva Brikić (UNECE)
- *Eliminating multidimensional poverty by providing decent living standards for all*, by Jarmo S. Kikstra, Setu Pelz, and Shonali Pachauri (IIASA)
- *Closing cooling gaps in a warming world*, by Alessio Mastrucci, Bas van Ruijven, Shonali Pachauri (IIASA)
- *SCP Policy Design for the Post COVID-19 Society: Envisioning-based Policy Making (EnBPM)*, by Yasuhiko Hotta (Institute for Global Environmental Strategies, Japan), Tomohiro Tasaki (National Institute for Environmental Studies, Japan), Masahiko Hirao (University of Tokyo, Japan)
- *Conceptualizing future scenarios of artificial intelligence – from energy servants to AI servants*, by Richard A Roehrl (DESA)
- *Enhancing the sustainable development component in the Action Plan of the STI for SDGs Roadmap in Serbia*, by Alessandro Rainoldi, Liliana Pasecinic, Monika Matusiak, Angela Sarcina (EC-JRC); Olga Bolibok (expert); Viktor Nedovic, Tijana Knežević, and Lazar Zivkovic (Serbian Smart Specialisation Team).
- *Localised Science, Technology and Innovation (STI) for SDGs Roadmap in Ukraine: defining the governance and policy frameworks*, by Monika Matusiak, Angela Sarcina (EC-JRC); Olga Bolibok (expert); Darya Chayka (Ministry of Education and Science of Ukraine); Lyudmila Musina (Ukrainian Institute of Scientific and Technical Expertise and Information).